ELECTRICITY ON THE FARM *Magazine*

JUNE-JULY, 1954

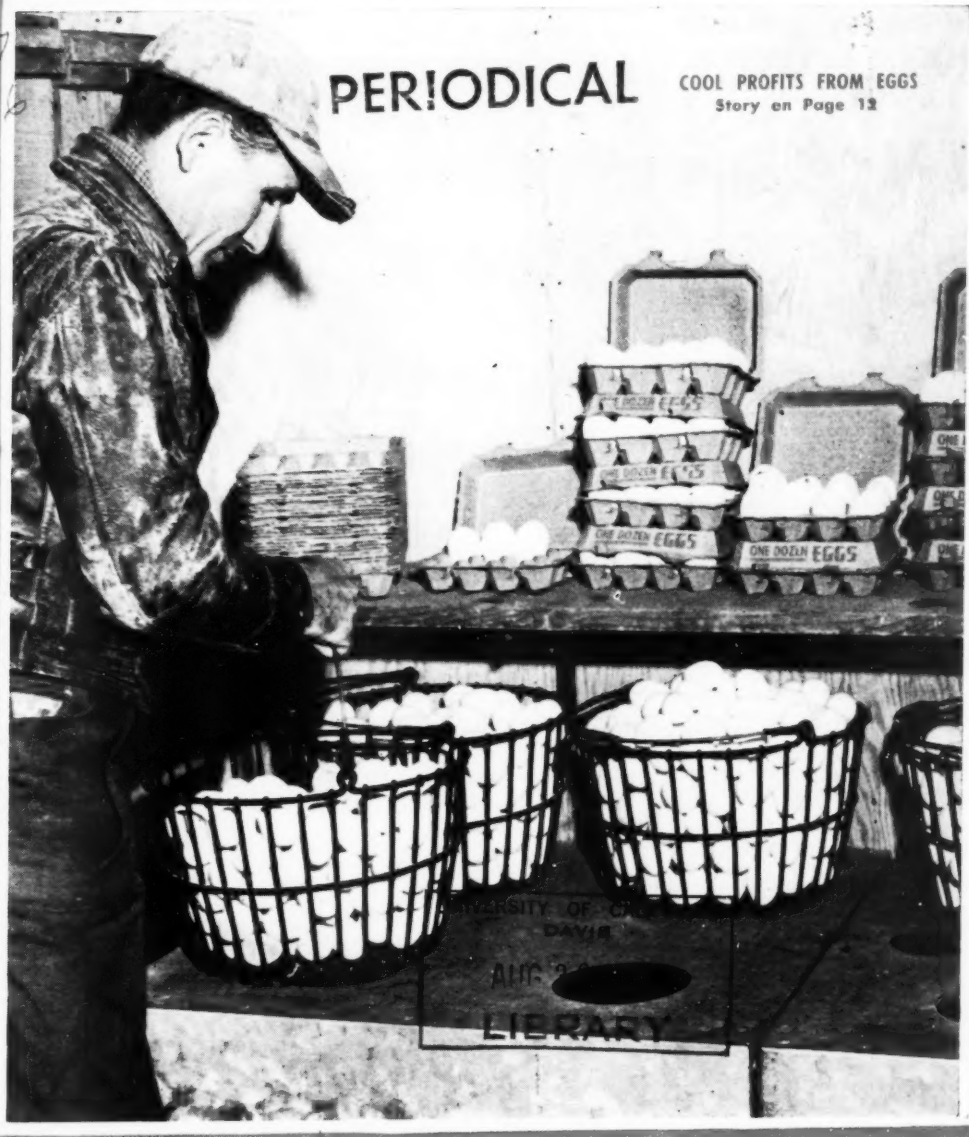
What Irrigation Has Achieved
The Air Way to Better Hay . .
Summer Air Conditioning . .
A Poultry Picking Project . .
Get Extra Value from a Dryer

27th Year

TK4018
E5
V.27
NO.6

PERIODICAL

COOL PROFITS FROM EGGS
Story on Page 12



UNIVERSITY OF CALIFORNIA
DAVIS
AUG 2
LIBRARY

A CASE-SHEPPERD-MANN PUBLICATION

Ask for G-E Motors and Control on all Electrified Farm Equipment you buy!

GENERAL ELECTRIC FarmNews

Ask for G-E Motors and Control on all Electrified Farm Equipment you buy!

MORE POWER TO THE AMERICAN FARMER through more electricity on the farm

AUTOMATIC PUMP PROVIDES "CITY WATER SERVICE"

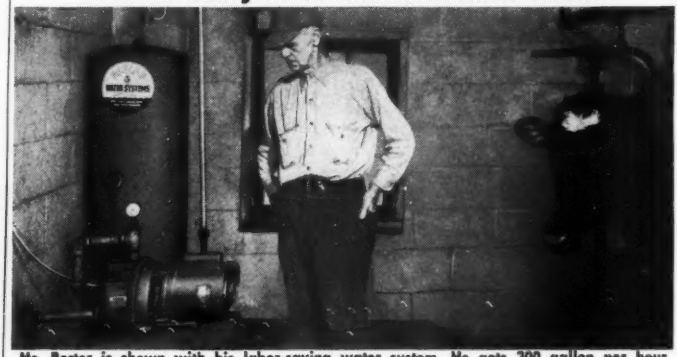
NEW TYPE IRRIGATION PUMP INCREASES COTTON YIELD

Pump company representative checks Mr. Olsen's new deep well pump.

Mr. Eric N. Olsen of Fresno, California, sprinkler-irrigates his 75 acres of cotton with new design deep well pumps. "I've found that I get better use from the same amount of water since these new type pumps were installed, which means increased yield and additional profit," says Mr. Olsen.

These pumps raise the water from wells and drive it through the pipes and out the sprinkler system at better than 40 pounds pressure, all in one operation. This means no booster pumps are needed for sprinkling. A special impeller mounted in the pump head at ground level does the work that would otherwise require three or four extra turbine bowls. These new sprinkler pumps are powered by dependable General Electric motors. For additional information check "deep well pump" on coupon.

New Water System Delivers Plenty of Fresh Water for All Dairy Farm and Household Needs



Mr. Porter is shown with his labor-saving water system. He gets 300 gallon per hour capacity with this pumping arrangement.

Mr. Alvan B. Porter and son Carl of Apulia, New York, never worry about having an adequate supply of fresh running water available — their new fully automatic water system provides "city water service" for all their 55-acre dairy farm requirements. As Mr. Porter says:

"I'm thoroughly pleased with my pump's operation and find it can take care of my barn and household needs without any strain. My cows have plenty of drinking water in front of them all the time. I hardly ever go near the pump — once in a while I look at the water-pressure gauge."

Powered by a G-E motor with built-in overload protection, this pump unit furnishes the daily water supply for 28 head of livestock and all the drinking and household water for the Porter's 12 room house with inside bath. For more information, check "water systems" on coupon below.

OREGON FARMER DOUBLES GROSS WITH SPRINKLER IRRIGATION SYSTEM

Mr. Carl Sande, Star Route, Forest Grove, Oregon, one of the most successful crop farmers in the region says: "I double my gross profits by using a sprinkler irrigation system". Mr. Sande irrigates 30 acres of land from a creek with the pump shown below. This pump supplies 360 gallons per minute at 70 pounds pressure. It is driven by a G-E close-coupled 20 hp motor, protected by a rugged G-E motor starter.

Mr. Sande also has automatic starting and stopping of his irrigation since the pump is equipped with a G-E time switch. He can set it last thing at night knowing that the time switch will shut it off at the right time.

Sprinkler irrigation gives uniform distribution of fertilizer while irrigating.

Mr. Sande adjusts valve to feed right amount of ammonium sulphate into water.

GENERAL ELECTRIC COMPANY
Section 330-1D, Schenectady 5, N. Y.

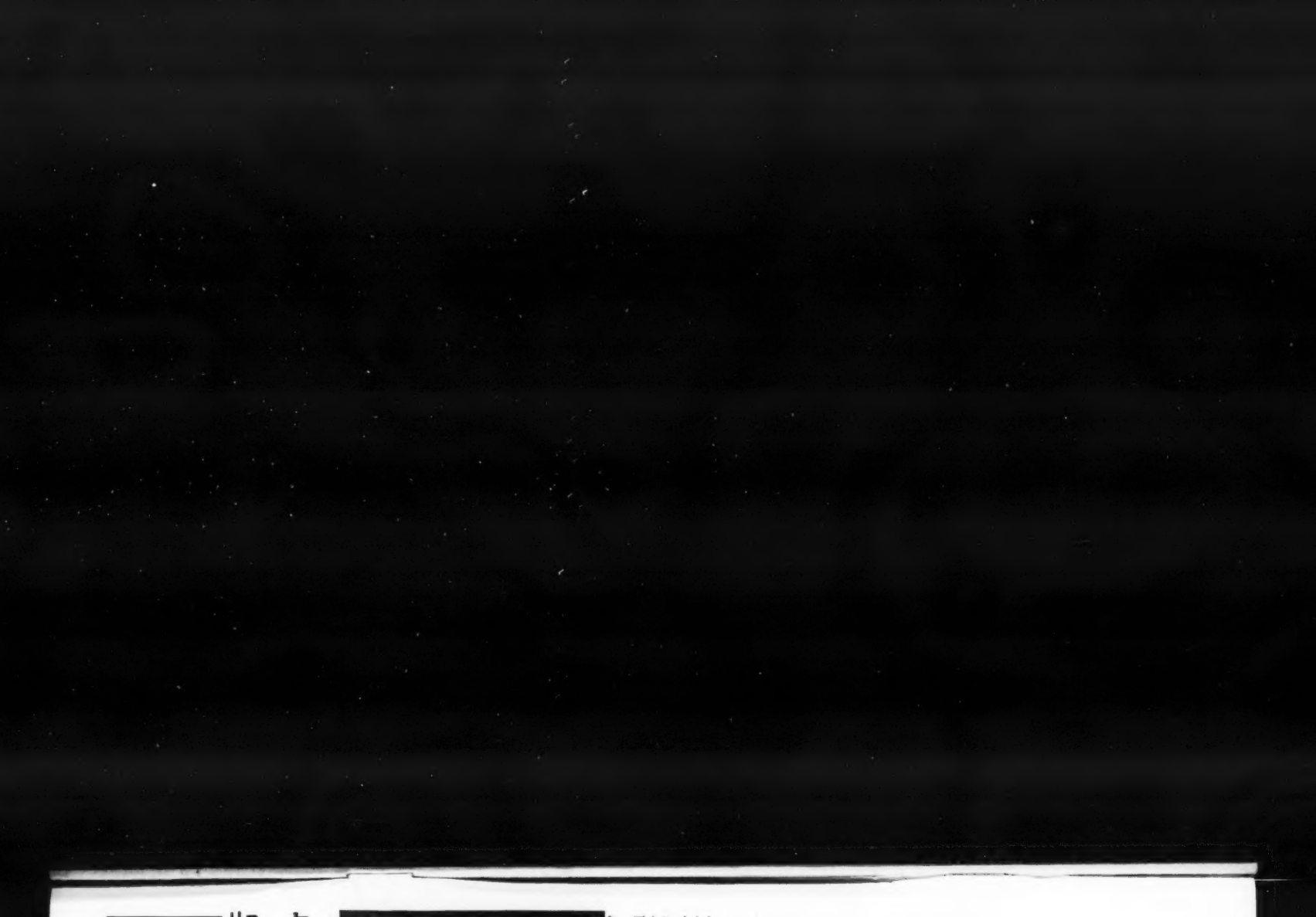
I would like additional information on the following equipment:

- ☐ Automatic Water System
- ☐ Irrigation Pump
- ☐ Sprinkler System
- ☐ How To Choose Your Motor

NAME_____

ADDRESS_____

CITY_____ STATE_____



Editor's Chat

DECADE OF PROGRESS

For some of us, we blushed a little back during the thirties when we would hear speakers talk about the now-arrived era of push-button farming. They were stretching it just a little bit. We might say that "push-button" farming was then on the "drawing boards." So many of the developments hadn't been truly tested on farms. In comparison, pause for a moment and think of what has really happened in the last ten years.

Think first of the changes in our handling methods. Conveying, elevating, hoisting, and air movement of materials were familiar, but only when applied to industry and mass production. Now these things are commonplace on our farms. And it has happened so fast!

Prominent among these developments have been the barn cleaner and silo unloader. Everyone will certainly agree that these two machines have taken the real hard work out of feeding silage and cleaning the barn.

To add health and comfort to our dairy herds, we now have practical methods of controlled ventilation. Much research and study has been devoted to this problem in the past ten years. This goes for the poultry house, too.

We are now practicing new methods of handling milk. Bulk cooling and the tank truck have eliminated the need for the milk can and all the lifting and problems of sanitation that go with it. It's a little thing in comparison, but the electric cow trainer, too, is a valuable aid for the dairy farmer.

Nowadays, it's hard to find anyone living on a farm who doesn't know about the infrared heat lamp, and what it can do. Prior to 1944, it would have been difficult to spot one of these lamps on a farm. Today, it's not uncommon to find more than a hundred lamps on a single farm. There is no simpler way to provide heat for brooding pigs, lambs, calves, chicks, or even young foals. You will find heat lamps in milk houses, milking parlors, over shop benches, and any other place where localized heat is needed. And do you know what these lamps were originally used for? It was for the rapid drying of paint in industry.

Hay finishing with air was well developed by 1944. On the other hand, the application of heat to the job was limited to commercial processors. We now find heated air driers on many individual farms.

Look what has happened to our methods of feeding. It's hard to find a sizeable broiler producer who doesn't feed his birds mechanically. And a good many cattle are getting their feed from a conveyor, too. As for the home, our good wives haven't started feeding us from a conveyor belt *yet*, but watch out! They have mechanized practically every other chore in the home.

The old saying that necessity is the mother of invention certainly applies to the application of labor saving devices during the past decade. We learned for ourselves and showed the world what could be done with a mechanized agriculture.

THIS BUSINESS OF FREEZING

To try and recite the figures on dollars spent, pounds frozen, and so on down the line, would only repeat billions and millions so fantastic that we could not readily comprehend. But to each of us, it means that every section, every farm, and every crop has a new potential. Electric power and the freezing it makes possible has brought this about.

From a small, experimental factory, freezing has become an almost universal method of preserving, processing, transporting, merchandising, and storing food in factories, farms, and homes all across the land. It has stimulated new crops, changed some, and rescued a few from disaster. The miracle it performed for oranges may very well be repeated for milk, eggs, and perhaps some other crops that suffer from severe price changes with the fluctuation of season or supply and demand.

Surely this business of freezing foods which the electric motor and compressor have made possible is a fine example of what men can do in a land of free enterprise and incentive.

Jim Ridout

ELECTRICITY ON THE FARM *Magazine*

JUNE-JULY, 1954—VOL. 27, NO. 6

Acceptance under section 34.64 P.L. & R. authorized at Dayton, Ohio.

W. J. Ridout, Jr., *Editor*
K. V. Anderson, *Managing Editor*
Edna E. Kestel, *Homemaking Editor*
Karl H. Gorham, *Business Manager*

Subscription rates: $1.00 per year; $2.00 for 3 years; $3.00 for 5 years. 10¢ per copy. Bulk rates on request.

Published monthly except combination issues June-July and Aug.-Sept. by **CASE-SHEPPERD-MANN PUBLISHING CORP. Executive Offices: 24 W. 40th St., New York 18, N. Y.** Karl M. Mann, *President;* Fred Shepperd, *Editorial Director;* I. H. Case, *Vice-President and General Manager.* Mid-West Office: 8 So. Dearborn St., Chicago 3, Ill. *Western Representative:* 6000 Miramonte Blvd., Los Angeles, Cal.

Copyrighted 1954 by Case-Shepperd-Mann Publishing Corp. Not to be reprinted without permission.

This new Kelvinator can save you hours and hours of work

All the most-wanted features, plus automatic defrosting at no extra cost!

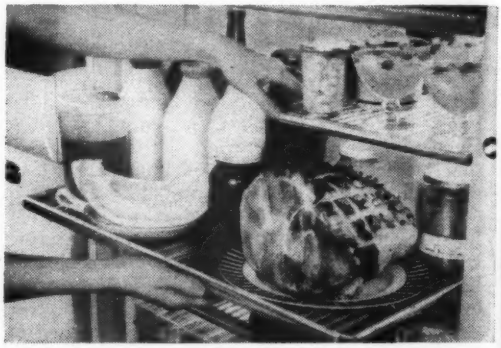
Model MAD 110 illustrated and described.

by Joan Adams
Kelvinator Institute for Better Living

▶ Here's new magic for farm homes! If you are tired of messy hand-defrosting, of hanging around waiting for defrosting to end, of mopping up afterward—this is for you. New Kelvinator 40th Anniversary refrigerators with glamorous Sea Tone styling banish all that forever. And you get the automatic defrosting—in any of 5 new Kelvinator models—at no extra cost.

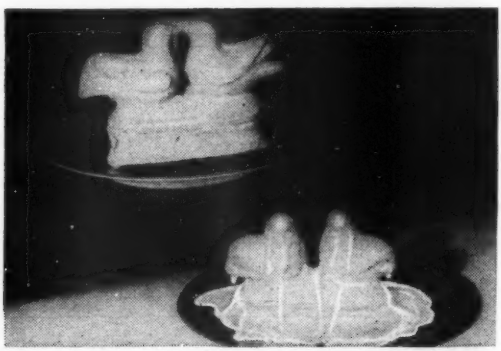
With this new 11 cu. ft. Kelvinator, you can muster meals in minutes . . . from the giant freezer chest . . . from the new roll-out Kelvinator Dairy Shelf . . . from the big, twin sliding crispers . . . from handy door shelves. See the newest in easier meals . . . savings in steps . . . in better farm living at your Kelvinator Dealer's.

Breakfast time—This giant Kelvinator offers tangy tangerine juice from the huge freezer-top, eggs from the egg-rack, butter from the door-chest. Its 11 cu. ft., cold-to-the-floor cabinet takes no more space than your old 6 cubic footer.



Lunch time—Take a cold ham, quarts of milk, juicy melons from your new Kelvinator's roll-out Dairy Shelf. You don't have to stoop or hunt. Everything's roomy for easier farm meal-making in your Kelvinator.

Anytime—Kelvinator welcomes raiders. Soft drinks on the door-shelves. Cheese, just right for snacking. And those wonderful "Moisture-Seal" crispers filled with fruits that are fresh and bright as the day you put them in.



Defrosting time—Even fancy ice cream molds stay solidly frozen during Kelvinator's "Magic-Cycle"* Defrosting, which uses no electric heater. All 5 new 1954 Kelvinators have automatic defrosting—and *at no extra cost.*

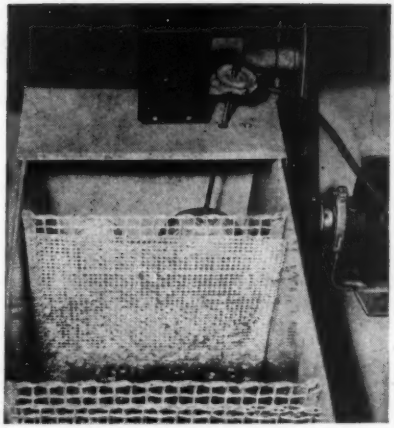
*Patent Applied For

Write for new free booklet: *Real Cool Cooking*, Address: Kelvinator, Dept. M, Box 302, Detroit 32, Mich.

Honey Processing

Streamlined with Motorized Equipment

By A. B. KENNERLY



A float controls the motor driven pump which transfers honey to the settling tanks.

Honey production, as far as the bees are concerned, can never become mechanized. They must bring in nectar, millions of drops at a time, deposit it in the comb cells and reduce the moisture content by 80 percent in a curing process. This curing is accomplished by a whirling motion of the wings of bees passing air over the honey to remove the moisture. Man has not yet invented a machine that will substitute for any of this work.

After the honey is made and cured and the cells capped over with wax, it's a different story. Beekeepers are using steam, electric motors, and electric pumps and storage tanks to relieve themselves of much of the drudgery in producing honey. "With the shortage of labor, we have mechanized everything we possibly can," says A. H. Alex of the Apiculture Laboratory at Texas A & M College.

Of particular interest is an oscillating uncapping knife. Hollow, to carry steam for heating, it is operated by an electric motor which gives the knife a ⅝ inch stroke. The knife has a double cutting edge and operates at 1725 vibrations per minute. The weight of the comb pushed over the cutting edge is much easier than dragging hand knives through tough combs and thick honey. A splashproof motor with sealed ball bearings is used to operate the knife.

Steam for the knife is generated in a 7½ gallon steam generator. Steam pressure at the knife can be controlled by adjustment of the release valve on the generator, or by adjusting the amount of heat under the generator.

An exhaust hose takes steam from the knife and carries it into a bucket of water which heats a hand operated uncapping knife. This knife is used on occasional thin and badly formed combs. Electrically heated uncapping knives are also available.

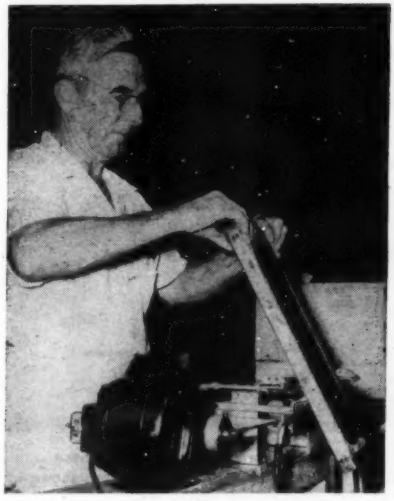
When the frames are uncapped, they are placed in a wheeled cart and hauled to the extracting machine. The frames are whirled until every drop of honey is thrown from the cells by centrifugal force. The Texas laboratory's extractor has a capacity of 30 combs. This is large enough to handle all the frames from one large colony of bees.

From the extractor, the honey flows into a sump tank. There, a float valve starts the pump when honey reaches a certain depth and transfers it into settling tanks. These tanks, holding 1,800 pounds of honey each, allow the honey to settle. The scum and comb particles rise to the surface and are removed. After settling, the honey is stored in 60 pound cans for shipment.

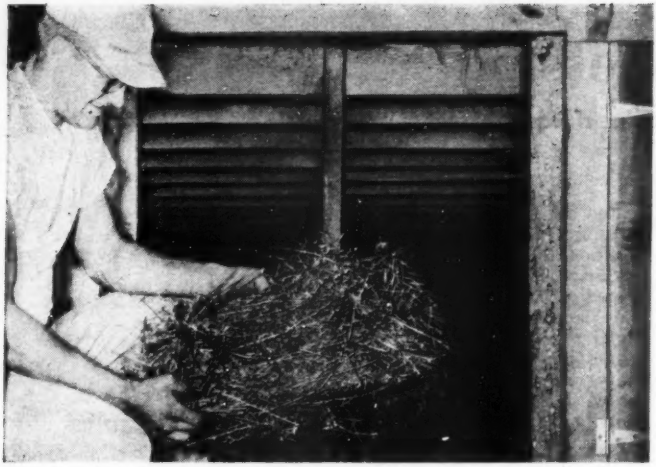
No means for heating honey is provided at the Texas A & M College installation, since no honey is bottled. If it should be desirable to heat honey for easy flow and faster settling, it could be heated to about 120 degrees. This temperature will reduce honey viscosity without melting the wax, which can then be easily strained from the honey.

For the small beekeeper, electricity is probably the most convenient source of heat. It lends itself readily to accurate control and it is easily installed. Soil heating cable has been used to warm up honey settling tanks. As honey is very sensitive, it is important that the amount of heat applied be controlled to prevent overheating and reduction in quality. This can be accomplished by means of a simple thermostat.

Although the trend, in recent times, has been toward bulk honey production, there is still room for the small producer. By producing a quality product it is possible to build up a business, through local outlets, that will provide a good consistent market.



A ⅝" stroke is imparted to the knife by a motor driven cam. The blade oscillates rapidly and the weight of the comb is all the pressure needed to cut through the wax cappings.



Hay like this, which Lehman Toms has taken from the mow, resulted in a $1500 lowering of the grain bill.

Maryland Report

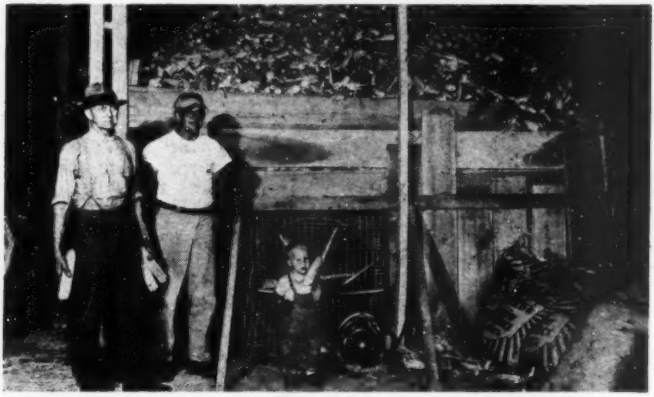
The Air Way to Better Hay

By **GEORGE O. MULLAN**

Hubert Toms and his son, Lehman, operate a modern 32 cow dairy farm near Benevola in western Maryland. In September of 1952, they decided to buy a 5 hp motor and 36" fan to dry their hay and grain, particularly ear corn.

As the season was late, they built a temporary duct to dry a small fourth cutting of alfalfa. This hay amounted to only a few tons, but both were pleased with its quality and liked the way the cows ate it.

To dry their corn, they built an A type duct, in sections, and set it up on the floor of their old bank barn. By putting rough lumber against posts on either side of the barn floor, along with some old fencing wire, the corn was held in place. The fan was mounted and got its air through a small opening in one of the big doors.



Corn, placed in a temporary drying bin on the barn floor, was easily dried without a trace of mold. Hubert Toms, Lehman, and Lehman's young son are shown in front of the 5 hp motor driven fan that supplied the drying air.

The Toms put 2400 bushels of picker corn over the duct and dried it at an estimated cost of ½ cent per bushel. There was not a trace of mold in any part of the pile—not even where shelled corn and silk had accumulated, directly under the end of the elevator which was used to load the drier. Mr. Toms says, "The corn was really tough and definitely would not have

Hay is our largest single crop. It may also be our poorest! Its value is determined, largely, by the type of plant grown, the stage at which it is cut, and the way in which it is cured.

Curing, alone, can determine whether the bulk of the hay is of top quality or of low grade. That is why the practice of partially curing hay in the field and finishing it in the barn, by means of blowers, has grown at such a fast rate.

The system is simple and many farmers have made complete installations themselves. An air distribution system is the first requirement. Then, a blower is needed to force air through it. The partially cured crop is placed over the air distribution system, the blower is started, and the air removes the excess moisture from the hay. It's as simple as that!

You can obtain help in planning a hay curing installation from the rural department of your power supplier, the agricultural engineering department of your state college or from your state extension service. Here are a few general rules to be followed:

1. Provide plenty of air moving capacity. You should have a minimum of 20 cubic feet of air per minute for each square foot of mow area served. The blower you select must be able to deliver this air against a static pressure of at least ½ inch.

2. If you have too much mow for the capacity of the blower you can operate, arrange to partition the duct so that different sections of the mow can be served separately. Or, you may arrange several ducts and move the blower from one to the other.

3. Provide a main duct with a minimum cross-section area of one square foot for each thousand cubic feet (cfm) of fan delivery. (A 24,000 cfm blower will require a duct with a 24 square foot cross section, such as 4' x 6'). Unless you use a slatted floor or lateral ducts, let the main duct be slatted. Keep openings just small enough to pre-

vent hay from entering. Be sure the mow floor is tight so that air does not escape down through it.

4. Use a propeller type of fan. Some other types have a tendency to overload a motor under varying conditions of air delivery.

5. Provide a direct air inlet to the fan from outside the barn. If possible, locate this on the sunny side of the building, to take advantage of additional heat from the sun.

6. Provide ample ventilation at the top of the mow, so that the moisture laden air can escape. Do not allow it to be recirculated through the blower.

7. In general, operate the blower continuously once hay is placed on the mow until curing is completed.

8. Do not put fresh cut hay on the system. It should cure partially in the field to around 35% moisture content. At this point, leaves will still be retained and the color will still be bright.

9. Place hay evenly over the system. Avoid tramping the mow, particularly with chopped hay. Pack bales tightly, breaking the joints as with brick, to keep air from chimneying up through.

10. Notify your power supplier before installing such a system. Do this in sufficient time so that he may arrange ample capacity to handle your blower motor. Also, be sure that the circuit serving the motor has sufficient capacity.

If you install a hay drying system, just remember that the whole process is based on air movement. Start the air flowing and keep it moving until curing is complete. However, a curing system in the barn cannot improve the quality of the material placed on it. It can only retain its quality. Harvest the crop at its proper stage of maturity, partially cure it in the field, and then place it over the ducts. You can expect higher protein, more carotene and a bigger milk check with a lower grain bill.

The Editors.

kept, if it had not been dried. As a matter of fact, I wouldn't have dared pick it so early without the drier."

Last spring, Mr. Toms and his son Lehman built two duct systems: one in each end of their dairy barn mow. Both ducts had a square cross-section and were slatted just enough to prevent hay from entering them. The Toms had both a baler and a field harvester. As they wanted to know which system of haying was better and cheaper for them, they decided to dry baled hay on one system, and chopped hay on the other. They first dried chopped hay over one duct, then moved the fan and motor to the other duct and dried baled hay.

Both Hubert Toms and his son are convinced that the primary purpose of a hay drier is to make quality hay, so they decided to let the quantity take care of itself. When they finished they had a mow full of top quality hay—half baled and half chopped.

It was the combined management of this father and son that made for success. The father managed the field work and Lehman personally loaded the driers. They constantly checked with each other.

This area was hard hit by drought last year, so they started feeding the hay early in September. Several times in the fall I was in their dairy barn shortly after the cows had finished their morning feed, and had been turned out. There was left, in nearly every feed manger, a large part, if not all, of the good grain ration fed these cows. However, the hay, in all cases, was fully cleaned up.

This alfalfa hay was good, both the baled and chopped. It was so good, in fact, that the Toms' grain bill for the same number of cows was approximately $1500 less than it was for an identical period the previous year, before the drier was used. And this, despite the fact fall pasture was not as good, due to the drought.

Many farmers in the surrounding areas have visited the Toms farm to look at this hay and to discuss with both father and son some of the details of making and feeding such hay.

Mr. Toms says, and Lehman agrees, "A hay drier should be used to make quality hay; you will find that quantity will take care of itself. We have decided to chop as much of our hay as possible as it is as good as bales, costs less to make, and is much easier to make. It is also much easier to feed.

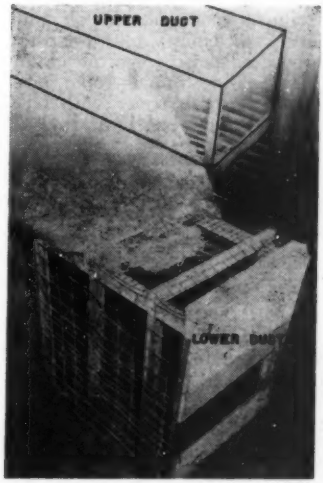
"We have never bought any piece of equipment that, dollar for dollar, has made us as much money as the drier fan for hay and for grain. In fact, we have bought a second fan and motor to install in the old barn. This will give us a drying system for all our mows. You just can't beat it."

Air in the Right Place

By ELWOOD F. OLVER

Most Pennsylvania dairy barns have high narrow hay mows. In order for a hay drying system to fit the hay mow, it has been considered necessary to have a single, high, narrow air duct. This has been located in the center of the mow with the air passing into the hay from its sides and top. At first, it was believed that this type of system was just the right thing. Then, many farmers began piling the hay too deeply over the duct. This did not always achieve the good results expected.

The main trouble with these single ducts is that the air travels sidewards as well as upwards. What happens if hay over the duct is higher than the distance from the duct to the edge of the mow? Too much air is lost at the sides and too little air pene-



A second duct (sketched in place) has been used to provide extra air at the top of Henry Schreckengast's deep mow.

Above: Mr. Schreckengast gets added value from his drying equipment by using it for other crops. As shown here, bags of combined grain are stacked to form a tunnel. Then the 3 hp fan is removed from the upper air duct and set up to blow air through the grain. This is both simple and effective.

Right: In order for both fans to obtain sufficient air for drying the hay, openings were made in the outside of the barn at the two fan levels. The lower fan is 36 inches in diameter powered by a 5 hp motor and the upper fan is a 32 inch fan with a 3 hp motor.

trates the top of the hay mow. If the duct is made higher and larger to compensate for this loss, then it becomes too large. It takes up too much room, and is too hard to cover with hay before the fan can be started to dry the hay.

Flue Formers Help

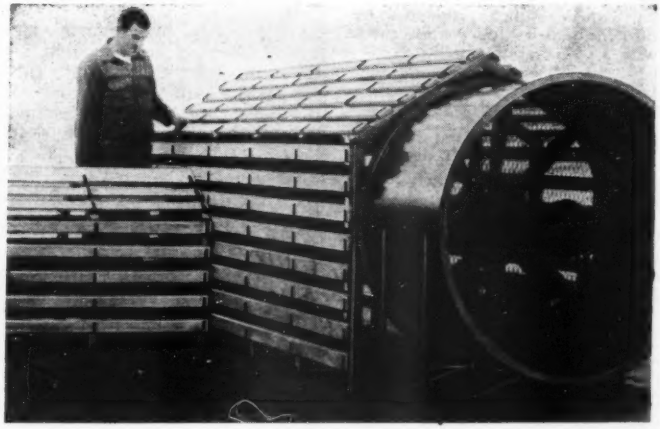
Many farmers have tried to dry greater depths of hay by using flue formers. Barrels and square wood tubes have been used to form openings, vertically, through the hay above the duct. These were raised, as the mow filled, leaving a path through which air could reach the top of the mow. Some degree of success has been achieved, but it requires good management to place these flues and to make them just the proper depth.

Second Duct Method

Mr. Henry C. Schreckengast of RD 1, Salona, Pennsylvania, solved this problem in a different way. He uses a regular drying duct which is 6′ high and 4′ wide. This serves an 18′ x 40′ hay mow until the hay reaches about 13′ in depth. A 5 hp motor driven 36″ fan furnishes air up to this point. Then a second duct, about 32 inches square, is placed on top of the hay. A 32″ fan, driven by a 3 hp motor provides air for this duct. The second fan and duct are allowed to settle with the hay. In this way, the Schreckengasts are able to fill the mow completely with hay and still be able to dry it evenly.

Mr. Schreckengast makes 95 to 100 tons of alfalfa hay for his fine dairy herd each year. He is well pleased with his investment and plans to use a second duct in at least one, if not both, of his other two hay mows which now have single ducts.

Both ducts are made of wooden framing covered with wire netting. This gives the least possible resistance to the flow of air. Tests show that the second duct, high in the mow, has improved the distribution of air tremendously. There has been practically no spoilage in the upper part of the mow.



New, this year, are prefabricated steel frames with which a duct can easily be built. Clips, on the frames, hold 1″ x 3″ boards in place. A 2″ spacing allows passage of air into hay. The clips hold the boards tightly enough so that no fasteners are required. Four different frame sizes are available.

What Irrigation Has Achieved

Farmer Experiences as Well as Experiment Station Tests Show Its Value, Even in Humid Areas

By JAMES H. LILLARD

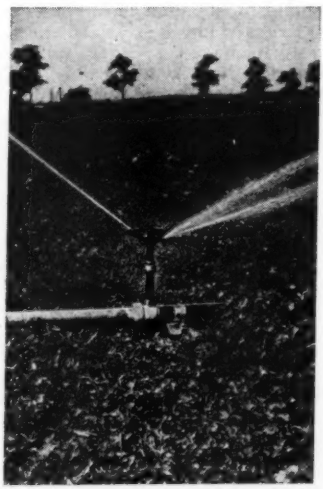
Last summer, J. B. Lawrence, Lincoln County, Kentucky, irrigated four and a third acres of tobacco, putting on an inch and a half of water on June fifteenth, August first, tenth, and eighteenth. The resulting yield averaged 1,700 pounds an acre, selling for $61.42 a hundred. At the same time, two and a half acres of the same variety, grown in the same way but not irrigated, produced 1,030 pounds an acre and sold for $52.10 a hundred.

On September fifteenth, thirtieth, and October fifteenth, Lawrence irrigated 15 acres of fescue, Kenland clover, and orchard grass, putting on a total of 3 inches of water. Eighty calves *were pastured there for 40 days. There was no rainfall during the entire period.*

September first, Lawrence seeded four and a third acres to crimson clover and rye-grass. On September tenth, he put on 1¾ inches of water and on October first he added another 1½ inches. Sheep were turned into the field on October fifteenth, at which time the grass was 3 inches high. Since no rain had fallen, he could not have gotten a stand without irrigation, he reported.

The Kentucky extension service sent us this report. It is typical of farmers who have turned to irrigation in the humid areas of the country. And it is also the reason why the State Experiment Stations and USDA are as anxious as they have been for many years to get all the answers possible. The following article by James H. Lillard, Agricultural Engineer for the Virginia Agricultural Experiment Station tells what they have found out recently in their state.

THE EDITORS

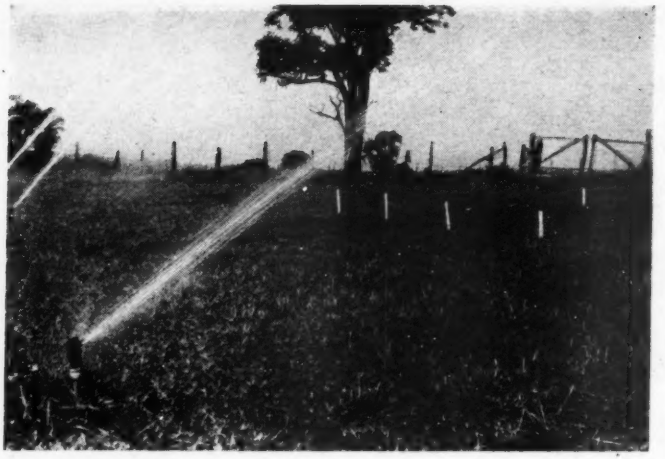


This sprinkler, used in the Virginia pasture studies, discharges about 10 gallons of water per minute at 35 pounds pressure. When placed 40 feet apart on laterals set 60 feet apart, it applies irrigation at approximately 0.4 inch per hour. The lateral shown is 3" aluminum with quick coupling.

Supplemental irrigation is receiving its greatest boost from emphasis upon bigger crops from less acres at lower cost. Actually, it is not a new practice, even in the humid east where average rainfall is 35 to 50 or more inches. Many eastern farmers, growing high value crops, have been using it profitably for years.

The rapid rate at which the farmers are accepting the practice is indicated by a recent statewide survey in Virginia. This revealed that during the last three-year period the number of new irrigation systems installed each year tripled the number put in during the preceding year. That is the Virginia story, but it is probably typical of irrigation expansion in most of the eastern states.

Such widespread acceptance is rather definite proof that farmers believe it is a profitable practice. It is well to point out, however, that many factors determine just how profitable it really is—and they vary on every



Part of the small plot tests in Virginia on 14 different forage mixtures to determine the effect of irrigation on quantity and quality of yield, uniformity of production throughout the season, and maintenance of mixture balances.

farm. It has been said that it takes money to make money. Irrigation is no exception to that rule. It is a costly practice. Therefore, each prospective user should proceed with his irrigation plans very carefully, utilizing the best possible technical advice and assistance.

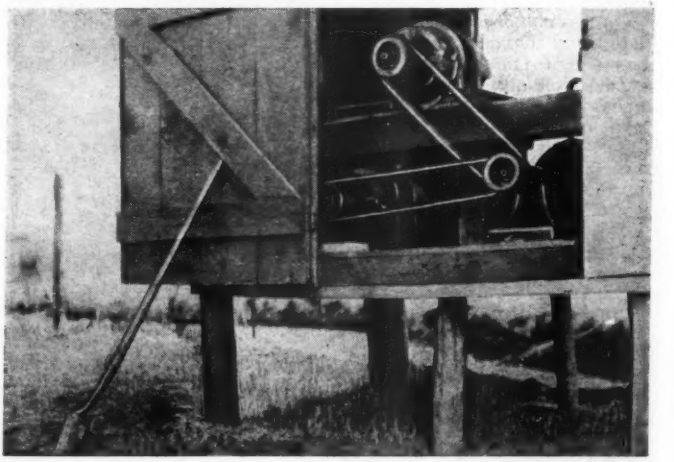
Experience in Virginia has shown that the farmers who make the most money with irrigation are those who use it on the higher value crops. This is confirmed by the 1953 burley tobacco tests which showed that the application of 10.0 inches of water increased the value of the crop $316 per acre.

Likewise, in 1953, the application of 10.0 inches of water in the corn tests increased yields from about 60 to 152 bushels per acre. In dairy pasture tests during the same year, sixteen inches of irrigation water increased cow-days of pasture 83 percent. Production of 4% milk was upped 2,552 pounds per acre. This was a 77% increase. There was also a 5% increase in average dry matter digestibility of the consumed herbage. These are average figures from ladino clover-orchard grass, ladino clover-Kentucky 31 fescue, and alfalfa-orchard grass mixtures.

Irrigation tests on ladino clover-orchard grass and blue grass-white clover mixtures using beef animals showed somewhat similar increases in beef production from the 16 inches of irrigation water applied. Average steer units per acre were increased about 65% by the additional water. The steers on the irrigated mixtures gained 48 pounds more per head than the check lot. This resulted in a market value almost 2 cents per pound higher than those on the unirrigated check areas. The lots were managed so that ample herbage was available for all animals at all times. Considering all factors, the total average return from irrigation was about $70 per acre in the tests with the fattening beef animals. Other irrigation tests on a wide variety of pasture mixtures gave similar results—75 to 85% increase in yields in 1953.

That is the bright 1953 picture of irrigation at the Virginia Station. However, analyses of long time rainfall records for this area indicate that droughts, such as were experienced that year, can be expected only once in about twenty years. In other years (such as 1949 and 1950) rainfall amounts and distribution are adequate for optimum crop production with little or no irrigation. Such variations in climatic conditions are common to most of the eastern high rainfall areas. Therefore, in evaluating irrigation, consider its so-called insurance value, which permits planning for maximum production each year. This is in addition to other benefits such as maintenance of stands, improved germination, application of fertilizer through irrigation water (with savings in time and labor) and many others.

Then, does irrigation pay? When considered over the long haul, including the wet years and the dry ones, the answer is yes. If farm conditions are favorable and the system is properly engineered and operated, both



Two 7½ hp motors were used to drive one of the irrigation pumps. Each motor had a three groove pulley and the pump shaft was fitted with a six groove pulley. This unit is capable of irrigating 22 acres with daytime pumping only. Additional operation at night would increase its capacity.

research and farmer experience support that conclusion.

Farm conditions necessary for profitable irrigation include:

1. *An adequate dependable water supply*—at least 10 gallons per minute during the driest period for each acre to be irrigated; and conveniently located to the crop area.

2. *Relatively high value crops*—the higher their value, the higher the profits from irrigation are likely to be.

3. *A productive soil* adapted to growing the desired crops.

4. *Optimum fertilization and good management practices.*

5. *Sufficient labor to operate irrigation system according to designed procedures.* It requires 1 to 1¼ man-hours per acre-inch of water applied.

Where those conditions prevail, moisture is about the only limiting factor to higher production. Thus, the application of irrigation is the next logical step.

In many cases it is possible and practical to develop a suitable water supply if the other conditions are favorable for irrigation. Get advice from a qualified engineer or a well informed irrigation dealer before starting.

What are your water rights under existing laws in your state? The current rapid expansion in the use of irrigation is increasing competition for available water resources. Hence, it is good business to get legal advice about your water supply before investing in equipment.

"Standards for Design, Installation, and Performance of Sprinkler Irrigation Equipment" have been established by the American Society of Agricultural Engineers and approved by the Sprinkler Irrigation Association. These standards were developed for the farmer's protection. When it is decided to purchase an irrigation system, it should meet these standards.

The selection of the pump and power unit is an important consideration. An irrigation pump develops a continuous uniform load. It must be operated at constant speed for uniform output. The electric motor is the first choice where electric service is available.

On one of the Virginia studies, 200-225 gallon per minute output against 65-70 pounds per square inch pressure was required. The largest motor that could be used there was 7½ hp, which was too small. The problem was solved by belting two 7½ horsepower motors to a single pump. Each motor had its individual starter so that the two motors were never started simultaneously. A time clock cut-off was provided as well as a safety pressure switch to stop the motors in case of water supply failure. That system has capacity for irrigating about 22 acres when operating on two-lateral-positions-per-day schedule. The acreage could be increased by including night operation. Current consumption was about 35 kwh per acre-inch of water pumped.

Per acre returns have been shown, by test, to be increased anywhere from seventy into the hundreds of dollars. There can be little question of the value of irrigation. With farm machinery developed as it is today, better seed, fertilization at high levels, and good land-use practices widespread, the control of water is about the only factor in the growing cycle that can be greatly improved. Irrigation can be the answer. It can pay a high premium to the farmer who uses the best farming methods.

WIRED WONDERLAND
INTERESTING FACTS ABOUT THE INDUSTRY THAT SERVES YOU.
CONVERSATION PIECE
MAINTAINING CONTACT BETWEEN A UTILITY'S LINE CREWS, GENERATING STATIONS, SERVICE PERSONNEL, AND DISTANT OFFICES REQUIRES EXTENSIVE COMMUNICATION SYSTEMS.
REGULAR TELEPHONES ARE USED WHERE POSSIBLE. IN ADDITION, MESSAGES ARE SENT OVER CURRENT CARRYING TRANSMISSION LINES. TWO-WAY RADIOS MAINTAIN CONTACT WITH SERVICE VEHICLES AND LINE TRUCKS. NOW THEY ARE ADDING MICROWAVE SYSTEMS.
MICROWAVE (A VERY SHORT RADIO WAVE) IS BEAMED FROM TRANSMITTER TO RECEIVER ON A LINE-OF-SIGHT PATH. BY USE OF REFLECTORS, IT CAN BE BOUNCED OVER OR AROUND MOUNTAINS OR HEAVILY FORESTED AREAS & BY-PASS ROUGHEST TERRAIN. AS NO WIRES ARE INVOLVED, IT IS UNAFFECTED BY ICE OR WIND. EVEN LIGHTNING DOESN'T BOTHER IT!
THUS, AT ANYTIME, VITAL MESSAGES CAN BE DELIVERED.

Cool Profits from Eggs

The Story Behind the Cover

By F. LELAND ELAM

A quick method of cooling eggs is paying big dividends for Nick Lentine, a Porterville, California, poultryman. He attributes his consistent high quality to fast cooling along with frequent gathering, washing, and drying. And the quality pays off! By producing grade "AA" eggs, he has received as much as 5 cents per dozen over the price he would have gotten for grade "A" eggs.

After the eggs are washed and dried, they are taken to an 8′ x 10′ refrigerated cooling room. In one corner of the room is a ¾ hp compressor with two attached blower fans, each powered by a ⅓ hp motor. Over this arrangement is a housing made of galvanized iron. In the top there are eight holes, each six inches in diameter.

A basket of eggs is set over each hole, the compressor turned on, and cold air blows up through the eggs. An hour later the eggs have been brought down to 50 degrees.

There are a number of advantages to this cooling system. Lentine gathers his eggs three times a day during cool weather and four times a day during the hot summer months. By cooling the eggs at once, Lentine is able to put them into crates before he makes the next gathering. If he could not do this he would have to have around thirty baskets and a much larger egg room. The baskets of eggs would have to be left overnight to cool off properly. As it is, he can have all eggs cooled and in crates by the end of the day they are laid.

There are several factors affecting the grade of eggs which rapid and proper cooling can control. The color of the egg is of prime importance and this is controlled by the density of the white.

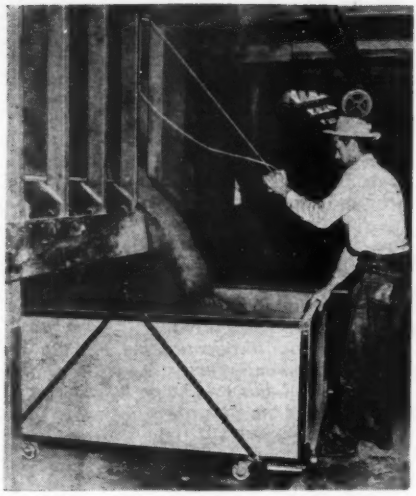
Heat makes the white of the egg break down and turn watery and it begins to lack the proper density to hold the yolk in place. If the yolk appears dark, due to the break down of the white, then the egg is graded down. As the darkness increases the grade is lowered. If there is no darkness the egg will be graded "AA".

The air cell in the large end of the egg also is considered in the grade. To be a grade "AA", it must not be over ⅛ inch. As the size increases the grade lowers. Cooling the eggs, along with proper storage humidity, helps control the size of the air cell.

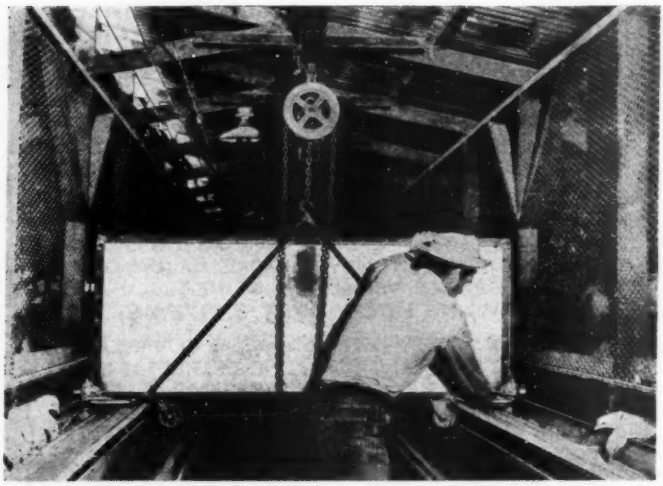
Lentine's room temperature is maintained at from 45 to 50 degrees, with humidity at about 70 percent. A pan of water is kept in the cooling unit to help furnish humidity.

Proper handling is not confined to the egg on the Lentine layout. His feeding system is simple and effective, too. It takes but two hours of time a week to feed the 8,000 laying hens on this farm. A traveling feed bin, carried on an overhead track is the means.

The track consists of a 5 inch I-beam fastened to angle iron rafter ties. The bin weighs 150 pounds when empty and holds 1,600 pounds of mash. It has an inverted V bottom, so that feed will flow from both sides into feed troughs as it travels



Feed for Nick Lentine's flock is released from overhead bulk storage. Note the casters on which the bin is wheeled into position under the chute.



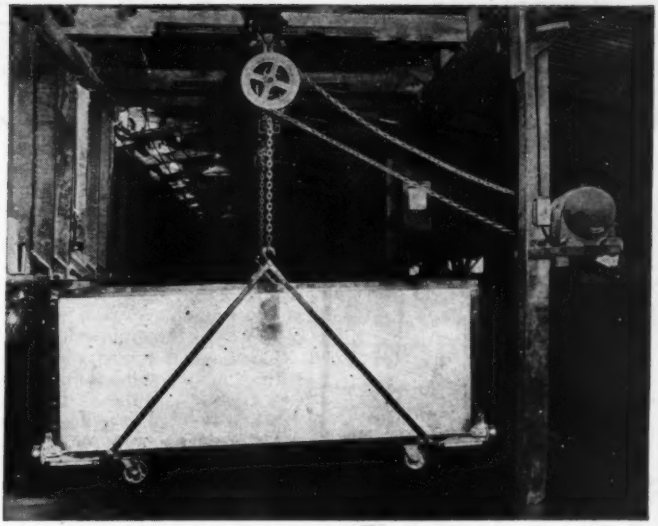
A slight drop in the track allows the full bin to be pushed easily along between the pens. Slides, at each side, open to allow feed to drop into troughs as bin passes. Note rollers at each end which ride angle iron tracks to keep bin from tilting.

throughout the length of the building.

Every three days the feed bin is pulled out from under the bulk storage bins and filled. It is then hooked to the chains of a commercial litter carrier which rides the track. The carrier's hoisting chain is placed over a pulley on a ½ hp motor that is mounted on a post. Flip the switch and the motor quickly lifts the load of feed into position for its feeding trip.

The pens are on both sides of the central alley, with feed troughs attached to the pen walls. The bin is just wide enough to straddle the two troughs. Although its weight is supported by the track, rollers at each end ride angle iron tracks and keep it balanced.

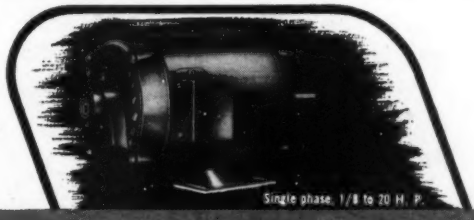
With the bin in position over the feed troughs, Lentine pulls a simple slide directly over each trough. Then he slowly pushes the bin the length of the house. The feed flows into the troughs, filling them within a couple of inches of the top. A three foot four inch drop in the level of the house, away from the bulk storage bins, makes pushing easy.



When full, the feed bin is rolled to the carrier, hooked to it, and the hoist chain slipped over a motor driven pulley. A flip of the switch raises the bin.

When the troughs are full, they hold around three tons of feed. Lentine makes about three trips to a feeding with his traveling bin. The troughs are six inches deep, six inches wide at the bottom, and twelve inches wide at the top. It takes but one hour to fill them. Thus, feeding two times a week, it requires but 2 hours a week for feeding the 8,000 birds.

Century



"Farm-Tested" Motors

FIT your present farm and home Equipment . . .

Make sure that you get a dependable CENTURY "Farm-Tested" Motor when one of your present motors needs replacing. Pump motors, oil burner motors, fan and blower motors, general purpose motors . . . all made to industry standard mounting dimensions.

Century C MOTORS

CENTURY Motors have been the "Farm-Tested" standard for more than 50 years. They eliminate back-breaking chores . . . do jobs faster, cheaper.

Ask your dealer for CENTURY replacement motors. Specify CENTURY Motors on your new equipment.

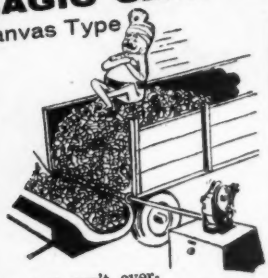
860

CENTURY ELECTRIC COMPANY

1806 PINE STREET • ST. LOUIS 3, MISSOURI

UNLOAD FOR LESS!
Flinchbaugh
WAGON UNLOADERS

1.
MAGIC CARPET
Canvas Type



You just can't overload this unloader. Loads loosen as they slide off... use less power. And no unloader will do the job faster! Our exclusive non-spring roller unit increases canvas life 200 to 500%. Recommended for *all size* loads and years and years of trouble-free operation.

2.
BIG SAMSON
False End Type

Comes complete with all fittings

Another inexpensive unloader, the Big Samson handles loads up to 5 tons with ease. It uses the proven Flinchbaugh power unit with adjustable speeds and operates with *any size* motor. This light aluminum cased slip-on power unit weighs much less than many more expensive types. Special alloy-steel heat-treated chain pulls false end—lasts the life of the unloader!

FREE FOLDER on both types. Write today for Catalog No. 36.

THE Flinchbaugh COMPANY
RIBERTS LANE YORK PA

On-the-Farm Drier

Handles Rice for 3 Cents Per Barrel

Because it eliminates the hazards of field drying, mechanical rice drying has become an almost universal practice of farmers living in the South Texas rice belt. Field drying is a gamble. Sudden rain squawls, continuing damp weather and high winds cause many a headache and loss of money when this age-old method is employed.

Commercial rice dryers have sprung up throughout the area, but Bailey Brothers, farming 130-acres of rice near Lane City, Texas, have come up with a new answer—electrical drying on the farm itself. The dryer, as utilized on the Bailey farm, is a prefabricated installation.

Complete operations take place in a Quonset building 32′ wide, 84′ long, and 17′ high. Movable wooden bin walls form two rice drying spaces 16′ wide, 32′ long, and 10′ high. Each is capable of holding 1000 bbls.

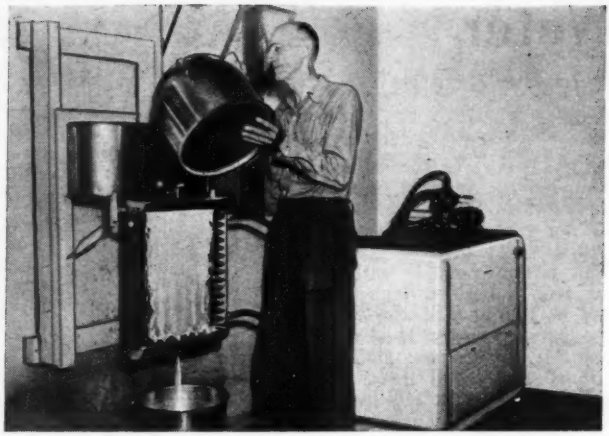
George Jones (left), and C. W. Meehan, inspect the dryer ducts in one of the rice bins. Each bin has a concrete floor and is served by four screened, slatted ducts as shown. Reinforcing rods are needed to withstand pressure from the weight of the stored rice.

Four wood ducts run the entire length of the bin, and it is through these ducts that electrically heated air is run from the outside blower to the stored rice. Each duct is approximately one foot square with the top openings running lengthwise. Over these slats, copper screen wire has been fitted (to prevent clogging when rice is dumped into the bin), and each duct is in sections for easy installation and removal. Blower power is furnished by a 2 hp-single phase motor. Motor, blower, and heaters are portable, enabling the unit to be moved and attached to the opposite bin ducts.

George Jones (left), checks the 2 hp motor installation of Bailey Brothers' rice drier, while L. B. Bailey looks on. The heater and fan blades are located in the circular housing. This movable unit is located outside the building and is connected to four drying ducts at each setting.

The "on the farm drying method" has proven to have all the advantages that Bailey Brothers anticipated when they installed the equipment prior to the 1953 harvesting season. Said the spokesman for the brothers, L. B. Bailey, "Using our new equipment, we spent about 3 cents per bbl. drying our 1400 bbl. rice crop last season, and cut hauling and handling of the rice to a minimum." Bailey Brothers figure the drying unit will pay for itself in four years.

Feller sez . . . "My mother had to bake and fry all day over a wood stove to get the compliments that my wife gathers after 30 minutes of thawing things out."



A Simple Milk Cooler

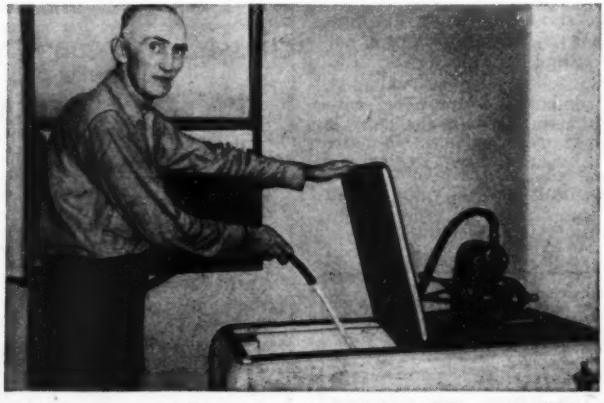
By GORDON CRAIG

One way for a farmer to get more of the consumer's dollar is to sell his produce directly to the ultimate consumer. P. F. Brown and Son, of Honaker, Virginia, do just that. They produce and retail Grade A milk.

The milk is processed in an attractive, well lighted, concrete block building. The equipment used is standard, with the exception of the aerator, which cools the milk. Perhaps it's not the aerator that's unusual as much as is its cooling method.

Mr. Brown says, "I went to a field trial for coon dogs and noticed that the bottling company was using a small cooler to cool the soft drinks and I thought I could use one in my dairy." He bought one of the cooling boxes for $35, and bought a second-hand pump, with a ½ hp motor, for a circulator.

Back at the dairy, Mr. Brown set the unit up. The compressor keeps the water in the cooler at a temperature of about 35 degrees. By attaching two hoses to the aerator, Mr. Brown uses the unit to chill the milk. The pump forces the cooled water through the aerator, from which it is returned to the cooler for further refrigeration. Between 20 and 30 gallons of hot milk are cooled each day to a temperature below 50 degrees. After it is bottled, it is stored in a dry cooler until time for delivery.



The hose from the top of the pump runs to the bottom of the aerator. Water circulates through it, up through the aerator, and returns to the cooler.

MORE HAY PROFITS

A BUDGET-PRICED

DELCO CROP DRYER

HELPS YOU 4 WAYS

Yes . . . here's why a budget-priced Delco Crop Dryer helps you realize *more* from your forage crops. With a Delco you can . . .

1. Harvest earlier with less field loss.
2. Harvest when feed value is at peak.
3. Cut curing time as much as 40%.
4. Reduce spoilage in storage.

WHY *DELCO* IS BETTER

- Budget-priced! Costs less to buy, less to run.
- Resists fluctuating voltages on rural lines.
- Trouble-free. No pulleys or belts.
- Vibration-free. Dynamically balanced—bolting down unnecessary.
- Portable. Easily moved for drying, barn ventilation.
- Dependable. Made by the company whose electric motors power millions of home appliances.

A Delco motor, built into the hub of a rugged cast-aluminum fan, moves a big volume of air at minimum cost. Choice of single- or three-phase 230-volt motor. Write for free circular, name of nearest dealer.

DELCO PRODUCTS

Division of General Motors Corporation
329 E. First St., Dayton 1, Ohio

Lack of Water

Is It Your Supply or Is It In the Fittings?

By V. L. TANNEHILL

When the capacity of the average water system decreases, it is usually blamed on the water flow into the well. It has been found, however, that the decrease in water supply may be the fault of the pumping system rather than the well. Actually, the foot valve, in many cases, is the real source of the trouble.

For a water system to operate at maximum efficiency, the water in the suction line should be held at a level close to that of the suction port of the pump. Thus, when the pump stops, the water level in the suction line does not recede to any great extent.

This is only possible with a good foot valve to hold the water in the line. If the foot valve leaks, the water level will recede. If this occurs, all the air must be cleared from the line before the pump will begin to deliver water. This may mean that the pump will operate several minutes before water begins to flow. It reduces capacity and causes undue wear on the pump.

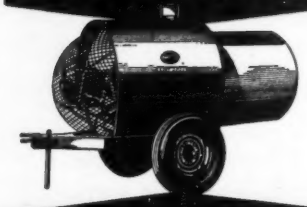
On old installations, it may be found that the strainer, surrounding the foot valve, is partly or completely clogged. Of course, this will reduce capacity, greatly, and may cause complete failure of the system to deliver any water.

Installation of a good foot valve will, under such conditions, increase the capacity of a pumping system to nearly its original level.

To operate at maximum efficiency, the foot valve should have a light weight poppet without springs. Thus, it will require very little suction to open. The strainer should be of the non-clogging type, to avoid subsequent reduction in capacity, and the body of the valve should be brass for long life. If your water system is not operating at maximum efficiency, check the foot valve. A few dollars, wisely spent, may be just the "shot-in-the-arm" it needs!

Reading is of no value unless we translate what we read into life itself.

Hartzell Power Speeds Drying...



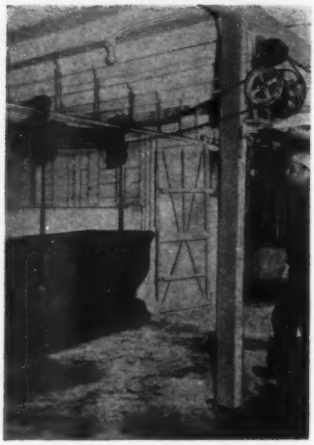
Saves You Money

A Hartzell crop drier packs the punch for a fast drying job. The powerful Hartzell unit forces the heated air into the heart of your batch drier, bin or mow. And that's what it takes to insure fast, complete drying. Faster drying saves time, saves fuel. Hartzell power puts money in your pocket.

Compact. Sturdy. Easily portable. Completely automatic. Three sizes — 3, 5 and 7½ h.p. And the Hartzell drier comes as a complete package. No extras to buy. See your dealer or write today for details.

HARTZELL propeller fan co.

Agricultural Division Dept. F PIQUA, OHIO



Manure Carrier Hoist

It's easy to lift a full manure bucket at the Shaw Dairy Farm, near Dracut, Massachusetts, because it's done mechanically. Mark Shaw and son Warren rigged up a Model A Ford transmission on a barn post with a ¼ hp electric motor to do the job.

The manure carrier chain is slipped over the wheel at the transmission. Then a lever is moved to pull the transmission away from the post to tighten the chain. With a snap of the motor switch, this hard, heretofore manual job is done with practically no effort.

The revolving wheel raises the bucket quickly and easily. When the bucket is in position, the motor is stopped. Slack is added to the chain by releasing the transmission and the chain removed.

CHARLES L. STRATTON

Chickens That Can't Fly

We have a report that Dr. C. S. Shaffner at the University of Maryland has developed chickens that can barely get off the ground. He has about 1,000 of them now, with another 1,000 in prospect. He has been working on the project for seven years. His object was to breed a strain of chickens lacking the twenty-two primary and secondary flight feathers on each wing.

When developing these chickens, he was not thinking so much of low fences as of the extra work needed to pluck the flight feathers in dressing for market.

The Automatic POULTRY WATERING FOUNTAIN

FOUNTAIN $6.95

Completely automatic. Rustproof brass. No moving parts. Easy to install. Non-flooding. Sanitary. Operates on any pressure. Heater protects to zero. If your dealer doesn't carry it, order direct.

WRITE FOR FREE LITERATURE

SMITH-GATES, CORP. DEPT. F1 PLAINVILLE, CONN

HEATER $4.95

OPTIONAL ANTI-FREEZE PROTECTION

Both Only $11.20

EVERSTOPTOTHINK?—SUCCESS is MAKING HAY out of the grass growing under OTHER folks feet . . . . TIRADE: son latching on to dad's best neckties . . . . SODDEN THOUGHT: a thing TOO good to be true USUALLY isn't . . . . Probably NO dust affects the eyes as MUCH as GOLD dust . . . . HOUSEWIFE (to Weary Willie): "WHY don't you WORK? Hard work NEVER killed anyone." Weary Willie: "You're WRONG, lady; I lost BOTH my wives that way." . . . . If you don't believe that MONEY grows on trees, try buying some lumber . . . . THINKEROO DEPT: Many a couple who spent their honeymoon on the sands are spending their anniversary on the rocks . . . . OVERHEARD: "She looks like a million dollars—in loose change." . . . . Have you noticed that VERY few folks go to a doctor when they have a cold? They go to a movie or the theater . . . . STATISTICIAN: a fellow who helps figures when they can't lie by themselves . . . . JINGLEJOLLY DEPT: A little bit of Taffy, When a fellow's here, I'll say—Beats a ton of Epitaphy AFTER he has passed away . . . . BOSS (to painter, in the next room): "Are you working? I don't hear any noise." Painter: "Do you THINK I'm putting it on with a HAMMER?" . . . . A DASH of judgment is often better than a FLASH of genius . . . . A diplomat is a man who thinks twice before saying nothing . . . . SNICKERSNORT - OF - THE - MONTH: "What are you doing to my husband?" asked the alarmed wife as the doctor placed a white cone over the man's face. "Giving him an anesthetic," explained the physician. "After he has this he won't know anything." "Then DON'T bother with it," advised the wife. "He DOESN'T need it." . . . . MONEY: something to write home about . . . MOVIE STAR: a gal who divorces her husband when she needs publicity . . . . After all, an AWNING is only a SHADE above the street—no matter how high it may be suspended . . . . HOME TOWN: a place where people wonder HOW you ever got as far as you did . . . . PARTING THOUGHT: a GROUCH is a person who DISTRUSTS people who flatter him—and DISLIKES those who DON'T . . . . Your pun-peddler—*DUFFY.*

Every electrician needs CHANNELLOCK pliers

TRADE MARK REG. U. S. PATENT OFFICE

Look for the Channellock line when you're shopping for hand tools. Channellock pliers offer features that you can't get with other makes. And when you buy a Channellock plier, ask to see the full line—you'll find a style and model to do any job better.

THE PLIER DESIGN THAT OBSOLETED ALL OTHERS

CHAMPION DEARMENT TOOL CO.
MEADVILLE, PENNSYLVANIA

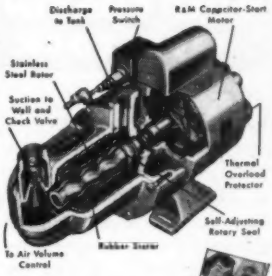
You get lots of WATER with this new, completely automatic

R&M SHALLOW WELL PUMP

Here is a truly amazing pump! No pistons or gears, no noisy belts, no reciprocating parts, no vibration. The only moving part, the stainless steel rotor, turns quietly in a cushion of rubber. Stands up for years even when pumping sand and silt.

COMPLETELY AUTOMATIC

Self-priming—starts instantly. Positive, even pressure. Completely automatic—starts when pressure drops to 20 pounds, stops when pressure reaches 40. Automatic overload protector, resets itself. Requires no care, no oiling, can't contaminate water. Easily installed; costs only a few cents a day.



Nine models up to 1200 gals. per hour. Tank-mounted types 250 and 350 g.p.h.

MAIL THIS COUPON FOR FREE FOLDER

ROBBINS & MYERS,
Springfield, Ohio, Dept. EF-64
Please send free folder on shallow well pumps.
Name.....
Address or Box No......
Town.....*State*.....

AMERICAN
MOW DRYING
Means Money to You

Now . . . A Mow Drying System every farmer can afford. All you buy are steel duct frames and the fan. Use your own lumber. Write for FREE sample diagrams and Crop Drying Manual.

AMERICAN CROP DRYING EQUIPMENT COMPANY
CRYSTAL LAKE, ILLINOIS

SAFGARD
ELECTRIC DAIRY
WATER HEATERS

The only non-pressure electric water heaters with a 10-year guarantee. Inner tank heavy gauge copper. "Wrap-around" heating element. Fiberglass insulation 3 inches thick. 3 sizes—10, 15 and 20 gallons. For details write Dept. 6-E.

Guaranteed for 10 Years

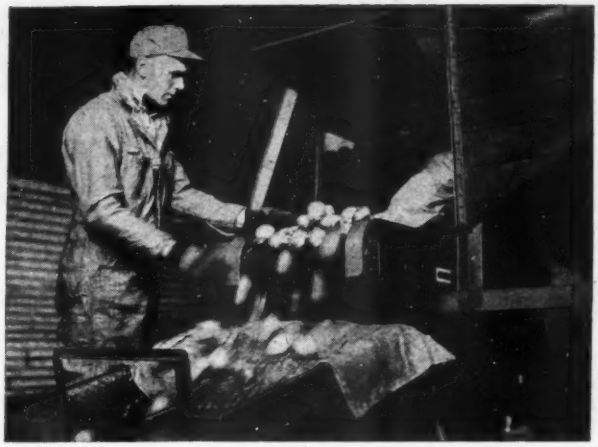
SAFGARD DIVISION
GRAND SHEET METAL PRODUCTS COMPANY
Melrose Park, Illinois

QUIT CHASING LIVESTOCK

A SHOX-STOK Electric Fence Controller keeps animals IN pastures, OUT of gardens and OFF highways. Priced as low as $12.95. Send for folder, name of nearest dealer.

SHOX-STOK, INC.
610 Main St., Wellington, Ohio

Name . . . . . .
Address . . . . . .
P.O. . . . . State . . . . .



When one of the special trucks backs in, the 1 hp unloading conveyor is slid into a space under the hopper body. As dump-boards are removed, the potatoes roll into conveyor which empties into an elevator.

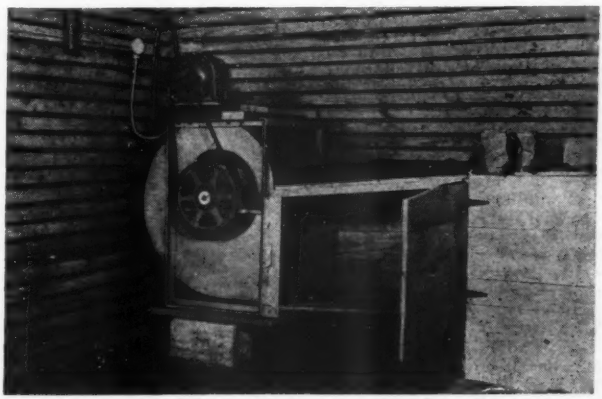
No More Wet Potatoes

By **ALLEN K. GILLETTE**

The Ettema brothers of Lapeer County, Michigan, have taken much of the back work out of potato harvesting. They have also taken the guess work out of storing the crop. After having been plagued with wet potatoes in storage, for several years, they installed a blower and ducts to eliminate the problem.

Potatoes on the Ettema farm are dug with a two row digger which drops them in a single row, to be picked up by a potato combine. The combine will do the digging too, if desired, but will only handle one row. For transfer to the storage building, the potatoes are loaded into special hopper-bottom trucks by the combine.

There are three of these special trucks on the farm, each with a capacity of 100 bushels. The sides of each body slope in toward the bottom, which is provided with dump boards. Beneath this there is a space, running the full length of the body, into which a conveyor can be set. The same conveyor fits into all three trucks, saving the need of an unloader for each.



This 2 hp blower provides about ¾ cfm of air per bushel of storage capacity.

When the truck arrives at the storehouse, the unloader is slid into position. It is driven by a 1 hp motor through a reduction

From the unloader, this ¾ hp elevator takes the potatoes and piles them over the air ducts. Note exhaust fan at far end to exhaust the moisture-laden air.

gear. Dump boards are pulled and the potatoes roll into the unloader, which feeds them into an elevator. This, driven by a ¾ hp motor, piles them up over the ventilating ducts.

The main ventilating duct measures 3½′ x 2½′ in cross-section and extends along one side of the building to within four feet of the end. It is installed permanently and lined with building paper on the inside to prevent air from escaping.

At five foot intervals along the main duct, lateral ducts, 10″ x 12″ in cross-section, extend to distribute air to the entire building. The laterals are made in movable six foot sections, thus permitting their removal when not in use. They are built of two inch lumber, with 2″ x 4″ cleats attached to the bottom. This raises them from the floor to provide space for the air to escape. A centrifugal blower, driven by a 2 hp motor, provides about ¾ of a cubic foot of air per minute per bushel of capacity. A smaller fan is used to exhaust the moisture-laden air from the peak of the building.

All of last year's crop was marketed without a single wet potato. The Ettema brothers agree that they would not be without their ventilating system, and plan to install one in a new 15,000 bushel storage to be built next year.

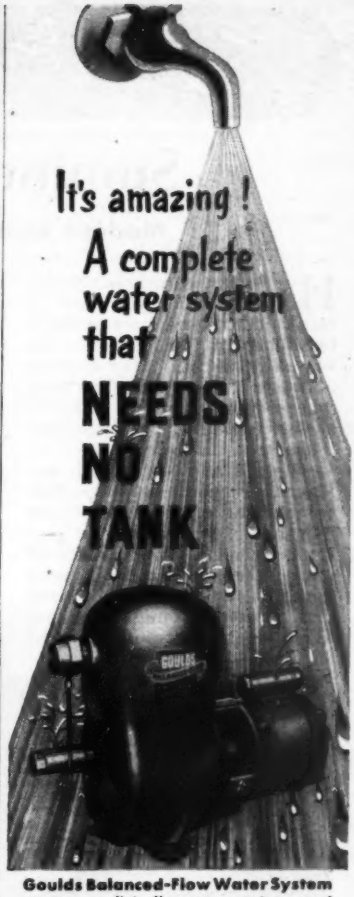
Here you can see the main duct, one of the openings for the lateral ducts, and one of the laterals.

Compressed Air

Frank Steiner, Vacaville, California dairyman, found that when air leaked out of the tires on his rolling equipment, it caused quite a waste of time because he had to take them several miles into town.

Taking a compressor out of a discarded refrigerator, Mr. Steiner hooked it up to a ½ hp electric motor and an air tank and provided his own compressed air. Below the tank he arranged a pressure gauge, a check valve —to keep the air from leaking back from the tank through the compressor—and an air hose with an air gauge on its end.

Now when he has a flat tire, he repairs it himself—whether it be on his car, tractors, or truck.



Goulds Balanced-Flow Water System gives you "city" water service—and savings, too. No tank to buy or replace! *No water lag!* This new system *adjusts itself automatically* to deliver *fresh* water instantly—all you want at *all* taps, up to 520 gal. per hour. Never needs priming. Compact—fits anywhere. Quiet, trouble-free—*only one moving part.* A wonderful buy!

TWO STEPS TO "CITY" WATER SERVICE: (1) Mail coupon. (2) See your Goulds dealer for a water system survey, an estimate and a demonstration. In his complete line of Goulds Tankless, Tank-mounted and separate tank systems, there's exactly the *right* system for your needs—modern, efficient, economical . . . engineered by Goulds, world's largest manufacturer of pumps exclusively.

GOULDS water systems

Goulds Pumps Inc., Dept. E-46, Seneca Falls, N.Y.

Send distributor name and FREE 20-page booklet illustrating and describing Goulds Tankless and Tank-mounted water systems.

NAME .....

ADDRESS .....

Summer Air Conditioning

Modern Units Make It Practical for Any Home

How many times have you wished when you were in an air conditioned store or theater that you could bottle up some of the cool, refreshing air and take it home with you? And when you tossed in bed that hot, sweltering night you longed for its cool, crisp relief!

There is no need to wish any longer, as you *can* have that comfortable relief right in your own home. With increased production and the appearance of many new models there is an air conditioner unit to fit the need and purse of most families. Whether it be a room or home air conditioning system, it will promote better health through comfort for a restful night's sleep, relief from airborne pollen and dust, and facilities for bringing in fresh air and exhausting the stale.

You'll also be surprised at the amount of cleaning it will save you by trapping the outside dust and dirt in the filters provided.

How do these systems work? Most of the air cooling units operate on the same principle as your household refrigerator. A fan draws outside air through a filter and over coils containing a heat absorbing liquid refrigerant, and circulates the cooled air through the room. The heat-laden refrigerant, having been changed into a gas, is pumped to a condenser where it loses its heat to air or water and is again liquified. It is then ready to return to its job of cooling air. Another type is the evaporative cooling unit. In these, air is forced by a fan through a screen over which water flows constantly. The evaporation that takes place cools the air. The former can be used anywhere—the latter in dry areas only.

What types of units are there? The room unit, most commonly used, is available in three types; window, built-in, and console. Best known of these, the window air conditioner, was originally designed to fit double hung windows. However, they are now available from some manufacturers for casement windows. Window air conditioners are available in sizes from ⅓ to 1 horsepower.

A built-in unit may be placed in an outside wall book shelf, or under a window. However, a vent through the wall or roof must be provided. This type, the least conspicuous of all, is available in from ⅓ to 1 hp size.

The third type of room conditioner is the console, which is available in larger sizes, from ¾ to 2 hp. Their increased power provides a greater cooling capacity and, therefore, with good air circulation may be used to cool more than one room. Since they do not recess into a wall or window, they require space in the room. Some of the units are placed at a window for air intake, while others use outside vents. There are also water-cooled units which require connection to a water supply and drain.

Refrigerating units are usually rated in terms of cooling ability

Some room air conditioners are made to be used as either window or built-in units. There is also one made for any type of window. Many, like the one above, project into the room no further than the window sill. The price range for window air conditioners runs from approximately $200 to $500. They will use from 1 to 1½ kwh per hour of operation, depending on size. Console type room conditioners can run up to $700 or $800.

Changes have been made in outdoor and indoor appearance of window air conditioners. They are neater and blend better into the surroundings.

as compared with ice. A one ton unit (1 hp) has cooling capacity equivalent to the melting of one ton of ice in 24 hours.

Although these three major types are, generally speaking, portable units, they shouldn't be classified as plug-in appliances. The smaller units can be operated from a 115 volt appliance circuit. However, any motor in excess of ½ hp should be operated on 230 volt current. Therefore, any air conditioner in excess of ½ hp should have its own 230 volt circuit. This is extremely important. Unsatisfactory operation as well as motor damage can occur if the wiring is inadequate.

More and more of the room units provide some supplemental heat, either by means of a heating unit or with the compressor acting as a heat pump. Most may be used to blow fresh air into the room and exhaust stale air when the cooling system is not needed.

A central cooling system may be attached to a forced warm air heating system. The small unit on top of the furnace above, cools and dehumidifies air which is sent through the entire home via furnace ducts. The compressor for this unit is located in breezeway, garage or suitable out building.

Central cooling systems are coming into more general use in homes, where formerly they were found only in theaters, office buildings, etc. In many cases the type of heating system in the home determines the kind of central cooling system to be used. Most of these types require considerable water, which in some areas demands the use of water saving devices.

A home with a warm air heating system may combine the two by adding a refrigeration unit to cleanse air and remove heat, with the furnace blower and ducts distributing the cooled air. However, each may have its own blower.

Other homes may have separate units, with the heating and air cooling systems using different distribution ducts. Combination units are also being produced.

Heat pump units are becoming increasingly popular in many areas. The motor driven compressor of the heat pump operates automatically to provide year-round air conditioning. When cooling is needed, heat and moisture are removed from the home and released outdoors. In the reverse, heat is taken from water or air outdoors to provide indoor warmth.

There are several factors to consider in determining the size of unit required to provide efficient cooling for your room or home. The average temperature and humidity in your area determine how much cooling will be necessary. The amount of sun or shade on walls and ceilings, insulation, window area, and height and size of room all have an influence on the cooling efficiency of an air conditioner. Don't skimp! The next size larger may be needed if the home is poorly insulated, rooms have large window areas, humidity is high, or if the unit is to be placed in a sunny window.

Here is a general guide to follow in selecting the size of your unit:

Room Area	*Size of Unit*
Up to 150 sq. ft.	⅓ hp
150–250 sq. ft.	½ hp
250–500 sq. ft.	¾ hp
500–700 sq. ft.	1 hp

A restful night's sleep in a pleasantly air conditioned room will do much to make the day's chores easier to accomplish. If other room cooling units, or a central system, is used the entire day can be spent in comfort with freedom from irritating pollens and dusts.

Freezer Tricks

Vegetables should always be scalded before freezing, even if you plan to store them for only a week or two. Research has shown that unscalded vegetables lose vitamin C and develop off-flavor and off-color, some after only 24 hours, while scalded vegetables show little change in quality.

Here's a tip on freezing fruits so they won't darken or dry out. To hold the fruit down in the syrup, crumple a four-inch square of cellophane, parchment paper or locker paper. Place it on top of the fruit and seal.

The maturity of a vegetable will greatly influence its texture, flavor and color after it has been frozen. Be sure you select for freezing only those vegetables that are at the maturity that is best for eating.

Get Extra Value from a Dryer

It Makes Easy Work of Special Jobs

By ELAINE KNOWLES WEAVER

Owners of dryers have found from use what a time and energy saving appliance they own! No longer do climatic conditions control wash day for them. The back breaking job of carrying a basket of wet clothes to the line has also been eliminated. Furthermore, clothes come out of the dryer soft, fluffy and ready for use, and in many cases ironing is not necessary.

Besides assisting with regular laundry, a dryer makes easy work of many special jobs. Some of these are blankets, pillows, quilts, spreads, slip covers and rugs. It is not only difficult to hang these articles on a line but they take hours or days to dry. With a dryer they become a delight to launder and are ready for storage or use in a short time.

Feather pillows, always dependent upon two or three days of hot sunshine and breeze and many turns for fluffing, are completely dried and well fluffed in a dryer with 1½ to 2 hours. Quilt patterns never look more distinct than when they come from a dryer, nor are shag rugs as fluffy and soft by other drying means.

Slip covers, removed from dryer while slightly damp, can be immediately stretched onto furniture where they finish drying to a smooth fit. Pleats and seams can generally be pulled into shape without further ironing. If necessary, a little pressing with a steam iron will smooth them.

Blankets can be successfully dried by placing them in a preheated dryer with 5 or 6 large dry bath towels to buffer the tumbling action and prevent excess shrinkage and felting. When dried at highest heat, if there is a choice, an ordinary 3 pound all wool blanket should be removed in about 18 minutes or while slightly damp. If stretched and brushed with a stiff nylon hairbrush, or a pet brush (steel bristles set in rubber), the nap can be raised to its original softness. Part cotton and rayon blankets will require a slightly longer time for drying.

Stuffed toy animals and dolls that are dried in the dryer with towel buffers are ready to assume their roles as inseparable playmates in about an hour.

Not only does the dryer accomplish its usual function, but it will also fluff and air many articles to give them a new-like appearance. Blankets and woolen clothes are "aired" between washings by tumbling them for a few minutes—say 3 or 4. Wrinkles can be removed from velvets, velveteens, and other napped items. Just preheat the dryer and add four large wet bath towels. When they start to steam put wrinkled items in and allow to tumble and steam with the towels for about 5 minutes. Remove them immediately and hang until all dampness is gone.

Each dryer user is anxious to obtain top efficiency. The em- . . . . . (More on page 26)

Above: Mrs. Lloyd Sassaman of Bedminsterville, Pennsylvania, smiles as she removes sheets from her time-saver dryer. She knows smooth sheets will promote better rest.

Left: Center of activity in the Bert Lancaster home in Matsqui, British Columbia, is the automatic washer and dryer. Doing laundry for a family of nine, of which five are under 12 years of age, keeps the equipment busy, often twice a day. All members take turns at operating the two appliances. Of the two, they recommend purchasing a dryer first. Mrs. Lancaster especially likes her short clothesline—30 inches from washer to dryer.

How to "stretch" a small kitchen

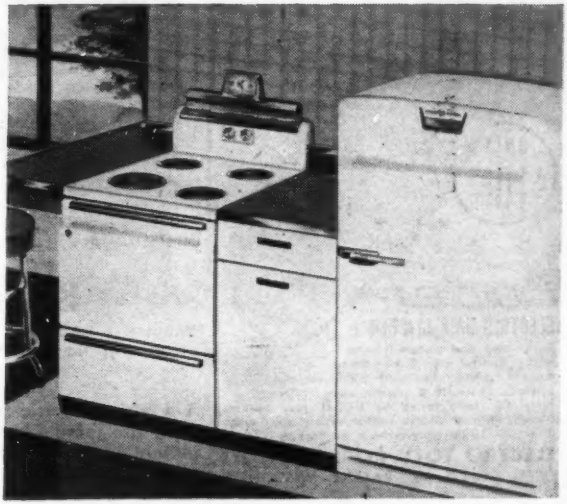
(or make a big one extra convenient)

G. E.'s big-oven

SPACEMAKER

takes up little room . . .
lets you use space
you wouldn't have
with a larger range.
Price . . . only $229.88

(New low price based on reduced excise tax)



A Spacemaker leaves room for counters, storage.

A Spacemaker leaves room for more counters, other appliances, because it takes up sixteen inches less width than a 40-inch range. Yet it gives you big-range cooking! Big, wide oven holds a huge meal. Surface cooking units are full sized—widely spaced to allow room for large pans.

IDEA! Use two Spacemakers! They cost no more than one de luxe range. You get two complete master ovens and the added convenience of eight Hi-Speed surface units. Just one of many interesting combinations you can have with 2 Spacemakers.

New wide oven. Easy to see and reach food. Easy to clean. Famous G-E "Focused Heat" broiler is economical . . . cooks the delicious "charcoal" way. Removable Calrod® bake and broil units. They slide out to clean. No old-fashioned open coils. You can own a G-E Spacemaker for about $2.38* a week. General Electric Company, Appliance Park, Louisville 1, Kentucky.

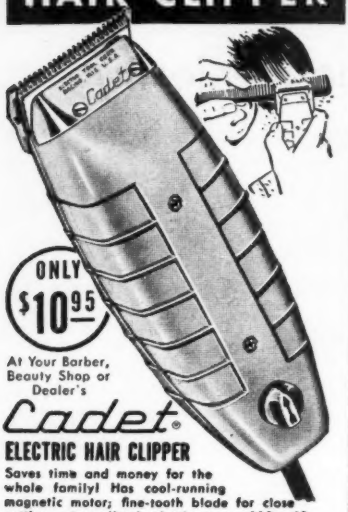
**After small down payment. See your G-E dealer for details. Prices and specifications subject to change without notice.*

2 Spacemakers let you bake in one oven, broil in the other.

Be modern . . . cook electrically

GENERAL ELECTRIC

PROFESSIONAL-TYPE ELECTRIC
HAIR CLIPPER



At Your Barber, Beauty Shop or Dealer's

Cadet
ELECTRIC HAIR CLIPPER

Saves time and money for the whole family! Has cool-running magnetic motor; fine-tooth blade for close cutting; streamlined plastic case. 110v 60 cycle AC; fully tested by UL. If your barber, beauty shop or dealer cannot supply you, order direct on 10-day money-back guarantee.

ELECTRO TOOL CORPORATION
DEPT. C464-F • RACINE, WISCONSIN

NO MORE
"HARD WATER RASH"
We have a
DIAMOND
Water Softener

SEND FOR THIS BOOKLET

A DIAMOND Water Softener removes the minerals that cause "hard water rash!" Soft water cuts the work in laundering and dishwashing.

Oshkosh Filter & Softener Co.
Oshkosh, Wisconsin

SAFGARD
PRES-VAC MILK AND CREAM PASTEURIZER

Pasteurizes Up to 2 Gallons in 24 Minutes

Pressurized heating destroys all milk-borne disease germs faster and *vacuum* cooling seals in all vitamins and delicious flavor. 1 year guarantee.

Write for FREE Descriptive Circular! Dept. G-E.

Model P-3000 2 gals. cap. f.o.b. factory $37.50

SAFGARD DIVISION
GRAND SHEET METAL PRODUCTS COMPANY
Melrose Park, Illinois

The surface section of a break-apart electric range fits into counter space with two oven units set in at waist height on wall to right. Notice arrangement of surface units at each end to provide plenty of work space. An exhaust hood over units carries away cooking odors.

Break-Apart Ranges

Make Electric Cooking Easier

By HAROLD U. WRIGHT

Mention electric cooking, and the mind's eye stirs up a picture of an electric range. A pleasant picture it is, too, for it carries the association of coolness, of economy, of convenience through such devices as the automatic timer, of cleanliness, and of the sleek beauty of the modern range. Happy is the farm home that has seen the transformation away from cooking drudgery.

Yes, the electric range has come to be regarded as the symbol of cooking advancement. But do you realize that it is now possible to plan even further utility and flexibility into your electric cooking units?

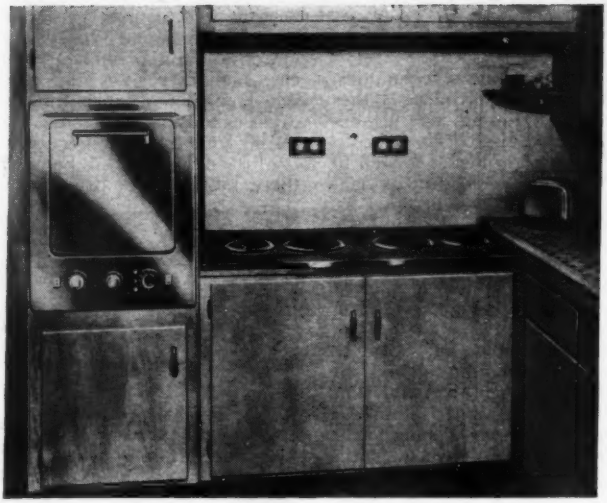
There is a trend today to "break-apart" electric ranges. This refers to separate ovens, that can be built in anywhere in the room. The surface units are set into counter tops much the same as is done with a sink.

Now, what does this fairly new concept offer your farm home? Of course, the first problem depends upon your particular mode of living. Perhaps there is considerable baking done in your kitchen. The built-in cooking and baking unit allows the oven to be installed across the room from the kitchen work area proper. In effect, a baking center, complete within itself and away from the normal routine, is possible. Mother can bake while sister cooks dinner, or vice versa.

Or perhaps you want to install two ovens in the baking center. The bread can bake while the roast cooks, and all are away from the clutter of sink and surface units.

These custom-installed baking units offer convenience, too.

Here is another arrangement of surface units. The semi-circular placement permits their use without reaching over hot kettles.



In this kitchen, the oven and surface section are placed side-by-side at correct height for the user. Relationship of height to user is an important factor in the efficiency with which the homemaker can use the equipment. Here surface units are placed in a straight line.

They can be built in at the exact height for the homemaker. This does away with the necessity of stooping and peering into the oven. And just think of a broiler that's set at waist height!

And what about those surface units? They can be fitted into any work counter, preferably near the sink or where the every day cooking dictates. Having the surface units placed close to the food cabinets can save countless steps every day. The units are arranged so there is no reaching over hot kettles. Some makes even offer a griddle built into the lineup. Picture, then, a peninsula counter between the work area and eating area. Hotcakes, eggs, or steaks can be dished up hot off the griddle and handed directly across to hungry families.

In case there is no room or reason for "break-apart" facilities in your home, here is still another seldom-thought-of possibility. How many times has the farm cook wished for another surface unit to cook that extra dish? Perhaps four units are not enough. The addition of built-in units to an existing counter can provide the solution.

The cost? Happily, the foregoing suggestions will, in nearly every case, be no more costly than that of the conventional range. And every good homemaker knows how electric cooking costs pennies and saves dollars.

So whether you are planning the great change-over to electric cooking, or whether replacement time is coming, there is a style for your home. Whichever cooking method you choose, there will be added happiness for you in the electric way.

Harvest—Then Freeze

Freeze vegetables immediately after they are harvested, because quality becomes poorer rapidly when produce is stored at room temperature. If a delay between harvesting and freezing is unavoidable, store your vegetables in the refrigerator until you are ready to use them. Remember that the shorter the time from garden to freezer, the better the frozen vegetable will be.

Fan Does Many Jobs

Remember how versatile a fan is! It will speed indoor clothes drying on rainy days, quicken defrosting of frozen foods, hasten paint drying, air closets—and aid in ridding the house of annoying odors.

It pays to use a
SUMO® SUBMERSIBLE PUMP

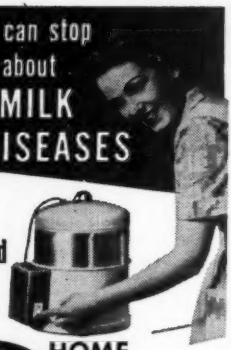
The pump is the heart of a water system. That's why you'll want and need the very best that money can buy. You get exactly this—*at a price that fits your budget*—when it's a Sumo Submersible Pump.

These amazing pumps operate under water—motor and all! They're easy to install. They're economical to run. And there's never a worry about freezing, priming, loss of suction, floods or vandalism. As long as you have electric power, your Sumo provides sparkling clear fresh water at your taps, day in and day out—year in and year out! Write for name of nearest distributor.

THEY'RE INSTALLED DOWN THE WELL
. . . out of sight—
out of mind!
Sumo Submersible Pumps fit any 4" or larger diameter well. Models available for every farm or home need with capacities up to 1000 g.p.h.
FREE CATALOG —WRITE

SUMO® PUMPS, INC.
Dept. E, 375 Fairfield Ave.
Stamford, Conn.

Now you can stop worrying about
RAW MILK DISEASES



Have SAFE Pasteurized Milk with HOME PASTEURIZERS

Milk from tested cows, handled with the best of care, may still contain germs causing undulant fever, typhoid fever, polio and other diseases. Home-Health Pasteurization destroys these harmful bacteria but doesn't destroy nutrition of milk or spoil its flavor. You can pasteurize milk in your own kitchen.

ONLY HOME-HEALTH OFFERS TWO, EASY TO USE, SIZES

FOR LARGER FAMILIES. A two gallon pasteurizer that's compact and light-weight. Positive bacteria kill without loss of flavor. Dual heat principle. Just turn it on . . . it's automatic. Laboratory tested.

FOR SMALLER FAMILIES. Popular one gallon size gives same positive pasteurization. Accurate timer-thermostat. No watching or stirring. Convection Heat Principle. Both models guaranteed for one year . . . Underwriters approved . . . Accepted for advertising by Am. Medical Assn.

FREE FOLDER Get the facts on milk-borne diseases and their prevention through pasteurization. Write

WATERS CONLEY COMPANY
Dept. E Rochester, Minnesota

Tell your dealer you saw it in ELECTRICITY ON THE FARM Magazine

Value From a Dryer

. . . . . (Here from page 22)

ployment of special techniques, such as correct sorting of clothes and proper timing, will accomplish this.

For even drying, it is well to have loads made up of materials of like weight, that is, sheer cottons and synthetic fabrics separately dried from sheets and towels.

Starched clothes are dried separately to prevent transfer of starch to unstarched items. For machine drying of starched items the solution should be slightly heavier than for line drying. Less sizing is lost and chances of starch sticking to the dryer basket are reduced if the dryer is preheated and the basket turned as starched clothes are added. These starched items may be removed when dry enough to iron, or they may be completely dried and then re-dampened.

Fibers naturally absorb and retain some moisture from the air. Drying clothes for a time past the actual drying point removes this natural moisture and causes wear on the fibers. Over-drying is not only hard on the fibers, but it also sets deep wrinkles that are hard to remove, causes greater shrinkage, and rolls the selvage of flat pieces.

T-shirts, socks, and other cotton knits may be stretched into shape if removed from the dryer while still slightly damp. These articles and others that have not been preshrunk tend to shrink more in the dryer—especially when overdried. If preshrunk cotton knits are not available, a good rule to follow is to buy a size larger and launder before wearing. Of course, preshrunk items are recommended.

Loosely knit or woven woolens, such as scarves and baby sweaters, should not go into the dryer as they become felted and shrunk from the tumbling action.

Most nylons and other synthetic fabric can be dried in the dryer. Use low heat. Always start them in a cool dryer. If they are placed in a dryer following a load dried at high heat the fibers may melt.

A dryer makes short work of drying man-made fiber garments. Here an Orlon coat is dried with the use of towels as buffers.

Lint, heat, and moisture from the dryer, if a problem in the home, can be vented out-of-doors. Special venting pipes, with dampers to prevent back drafts, are available for all makes of dryers that do not exhaust by means of a water spray or condenser. These venting pipes can be run through a hole in the wall or a pane of a window. A small shag rug placed beneath a front vented dryer will pick up much of the lint and moisture.

Don't be afraid to experiment with a dryer. It is one of the easiest and simplest of appliances to operate. Let it do as much work as possible for you and really earn the investment you have made in it.

If your ironing board is not adjustable to a sit-down height, use a high kitchen stool or chair —but sit down to iron.

Coal-Wood-Electric Baking with DIALED Heat

Just set the dial at the oven temperature desired. Electric heat is added automatically to the coal-wood heat to *hold* oven at the heat set! Takes the guesswork out of baking. No more constant fire-watching. Cooking top is half coal-wood, and half electric. See your Monarch dealer or write

Monarch SINCE 1896

MONARCH RANGE CO.
7024 Lake Street
Beaver Dam, Wis.

Ground Beef——the Base of Many Meals

The all-American favorite, ground beef or hamburg, is a life saver and budget stretcher. A versatile meat, it is used in patties that may be broiled or pan broiled and in larger portions for roasting or baking with a sauce. It may also be browned, then combined with a sauce and vegetables to make a delightful casserole or skillet meal.

Hamburgers are best when cooked slowly over low heat. One teaspoon salt with or without a dash of pepper seasons a pound of ground beef. One quarter cut chopped onion and a tablespoon Worcestershire sauce are also good seasonings. To finish off hamburgers, remove the brown juicy patties from the skillet or broiler pan and keep hot on a heated platter. Add to the pan drippings one of the following: chili sauce, Worcestershire sauce, horseradish, crumbled Roquefort cheese, shredded sharp cheese, chopped chives, chopped pimiento or ripe olives, or chopped pickle relish. Stir and pour over the patties.

Here is an extra special patty.

Hamburger Surprises

- 1 pound ground beef
- 2 teaspoons salt
- ¼ teaspoon pepper
- 2 tablespoons butter or margarine
- ½ cup finely chopped onion
- 1 slice bread, cut in 4 squares
- ½ cup chili sauce

Mix ground beef and seasoning. Divide ground beef into 8 equal portions. Shape each portion into a round patty about 3 inches in diameter. Melt butter in a large skillet. Add onions and bread squares. Stir and cook until onions are tender and bread is browned and crisp. Push onions and bread squares to one side of the skillet. Put 4 of the ground beef patties in the skillet. Place one fourth of the cooked onion and toast square in the center of each patty. Place remaining 4 patties on top of bread squares. "Seal" edges of the 2 ground beef patties by gently pressing them together with the back of a spoon. When bottom patty is cooked through turn it over to cook top patty. Turn carefully in order not to break the "seal" between the patties. Cook about 7½ minutes on each side. Place cooked "surprises" on platter. Heat chili sauce in the skillet until it is very hot. Serve hot sauce over the surprises. Makes four.

Everyone has their favorite one-dish meal which has as a base "1 pound ground beef". Most of these are a means of stretching the good beef flavor to add taste to bland foods such as rice, macaroni, noodles and potatoes.

Ground beef is sometimes combined with pork, such as in a meat loaf. Half as much pork as beef is a good proportion. Pork sausage, salt pork, or ham may be used for the pork ingredient. Strips of bacon may be laid over the loaf. Seasonings for ground beef one-dish meals are on the tart, piquant, and zesty side, rather than sweet. Onions and tomatoes are natural teammates. Others include chili powder, curry powder, marjoram, celery seed, mustard, Worcestershire sauce, pepper sauce, and soy sauce. Chili sauce, catsup, chopped mixed pickles, ripe and pimiento olives, tart jelly, parsley flakes, and even vinegar make an interesting change.

Here's an interesting broiler meal! Ground beef seasoned to suit your taste forms the wrap for two lusty, colorful vegetable spreads. When rolled up and cut into pinwheel portions the red of the beef whirls spiral fashion

Make Rain while the Sun Shines

Throughout the world Rain Birds' rain-making dependability is a long established fact. Their matchless performance and trouble-free operation are the result of 19 years of intensive research and development

Be sure the sprinkling system you get meets American Society of Agricultural Engineers standards and fits your requirements exactly.

Our research and planning department is at your service. Consult us without obligation.

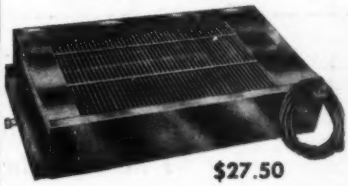
Member Sprinkler Irrigation Ass'n.

NATIONAL RAIN BIRD
SALES & ENGINEERING CORP.
AZUSA CALIFORNIA
RAINY SPRINKLER SALES
609 WEST LAKE ST. PEORIA 5, ILLINOIS

INSECTS KILLED BY THE BUSHEL

Without Dangerous Poison Sprays or Dusts!

No shock to people or animals.
Write for free literature.



$27.50

Flies, mosquitoes, roaches, etc. can't stay away from the INSECT ELECTROCUTOR . . . modern, electrical way to eliminate insects from homes, dairies, greenhouses, etc.

Insects attracted to simple bait go past top grid, are electrocuted by mild, low ampere shock. Night flying insects swarm to machine, lured by light bulb in receptacle.

INSECT ELECTROCUTOR is portable, easily attached wherever most needed. Operates on regular 110-120 volt A.C. current. Foolproof, all-metal construction, 24" x 14" x 5". Simply plug in.

Have comfortable, insect-free porch, rooms all summer . . . clear barns, sheds of disease-bearing insects. Just 30c a month to operate. Buy two . . . protect both home and barn. Mail check or money order to:

INSECT ELECTROCUTOR CO.
P.O. Box 53, E Western Hills Station
CINCINNATI 38, OHIO

FUN FOR ALL—the whole family can take part in this contest. CASH PRIZES will be awarded for the best suggestions for a last line to complete the verse at the bottom of this page.

What Would YOU Say?

Rhyme Contest

RULES—JUNE-JULY CONTEST

Seven cash prizes will be awarded for the best last line to complete the verse in the coupon below. Your suggestion should rhyme with the second line.

The first prize will be $25 cash; the second prize $10. In addition, five consolation prizes of $3 each will be awarded for the best last line furnished.

In case of a tie, each winning contestant will receive the full cash prize to which he or she is entitled.

All members of the farm family to whom this magazine was sent may enter but each contestant may submit only one line.

Question "A" must be answered.

Entries must be sent to the Contest Editor, ELECTRICITY ON THE FARM Magazine, 8 So. Dearborn Street, Chicago 3, Ill., before July 10.

The decision of the judges is final and all entries become the property of ELECTRICITY ON THE FARM Magazine.

Winning names and entries will be announced in the November issue.

Send your entry on the coupon or make out a similar form on a plain sheet of paper or government postcard.

Biddy Cluck and sisters, too,
Should lay eggs, but seldom do;
But with henhouse dark
I heard Biddy remark
? ? ? ? ? ? ?

My suggestion for a last line to the above verse is:

.....

(A) What makes of Electric Motors do you prefer?

1st Choice..... 2nd Choice .....

3rd Choice ..... 4th Choice .....

How many Electric Motors have you, which you secured separately, not as part of equipment?

Under 1 hp ..... Over 1 hp .....

My name is.....

R.F.D.....Post Office.....

County ..... State.....

Awards For March Contest

Bill McNott sells plants from his plot;
When the weather is cold, the plants rot
Now what Bill really needs
Is a circuit that leads
? ? ? ? ? ?

The Winning Last Lines

FIRST PRIZE—$25 CASH

"And nurtures when Nature does not"
Leroy Fluck
R.F.D. 1
Hellertown, Pa.

SECOND PRIZE—$10 CASH

"To the 'root of the trouble' he's got"
Tom Rehberg
R.F.D. 3
Mukwonago, Wisconsin

Five Consolation Prizes—$3 Each

"Warmth to seedlings when nature does not"
Mrs. Arnold Beversdorf
Shawano, Wisconsin

"Controlled warmth to the seeds sun forgot"
August Risch
R.F.D. 3
Mukwonago, Wisconsin

"To the plants in the plot that he's got"
Mrs. Gertrude Borthwick
R.F.D. 1
Saint Joe, Indiana

"To hot bed with warmth nature forgot"
Mrs. Lee N. Satterfield
East Side
Fairmont, W. Va.

"To his frames kept electrically hot"
Lois Mendel
R. R. 5
Indianapolis 44, Indiana

Honorable Mention

Jerry D. Balduf, Batavia, New York; George Bertrand, Mountain Top, Pennsylvania; Maynard Boyce, Scio, New York; Olive S. Daley, De Forest, Wisconsin; Mrs. Walter H. Dopp, Wild Rose, Wisconsin; Dorothy Gray, Sidney, Ohio; Mrs. Ernest A. Hermens, Forest Grove, Oregon; Rudolph J. Heyne, Forestville, Conn.; Geneva Ann Neff, Tiro, Ohio; Mrs. Mabel Penrose, Pennsville, Ohio; Audrey Rehberg, Mukwonago, Wisconsin; Annis Ridings, Guntown, Mississippi; Frances Shearer, Reinholds, Pennsylvania; Barbara L. Shenk, Refton, Pennsylvania; Isoah Tron, Marion, Ohio; Mrs. Marjorie Truitt, Snowden, North Carolina; Mrs. Don Weiskircher, Manning, Iowa.

The verse for this month's Rhyme Contest was furnished by one of our readers, Mrs. Lee N. Satterfield, East Side, Fairmont, West Virginia.

Fashion Duo

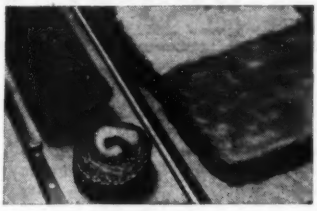
4553—FEW pattern parts, minimum details! Curvy neckline, fitted bodice, flared skirt. Misses' Sizes 12-20; 30-42. Size 18 takes 3¾ yards 39-inch fabric.

4706—Wear this ensemble with or without the bolero! It's cut to fit short, fuller figures! Half sizes 14½-24½. Size 18½ dress takes 4 yards 35-inch fabric; bolero 2⅛ yards.

Send THIRTY-FIVE CENTS (in coins) for EACH pattern to: ELECTRICITY ON THE FARM, 233, Pattern Department, 243 West 17th Street, New York 11, New York. Add FIVE CENTS for EACH pattern for 1st-class mailing.

IN CANADA: 60 Front Street, Toronto, Ontario

with the white and orange of potatoes and carrots. Broiled, baked, or pan-broiled, these are glorified tempters.



Beef Pinwheels

- 1 pound ground beef
- 1½ teaspoons salt
- ⅛ teaspoon pepper
- 2 tablespoons melted fat
- ½ cup bread crumbs
- 2 tablespoons tomato juice or milk
- 1½ cups seasoned mashed potatoes
- 1½ cups mashed carrots or peas

Mix together all ingredients except potatoes and peas or carrots. Place between 2 sheets of waxed paper. Use rolling pin to roll into a rectangle about ½ inch thick. Remove top waxed paper; spread mashed potatoes on half the meat and carrots over the remaining half. Lift waxed paper to roll meat firmly, jelly roll fashion. Wrap in waxed paper and chill in the refrigerator.

Come mealtime, use a sharp knife to cut 1-inch slices. Place these cut side up on broiler rack or baking sheet. Brush with melted butter or margarine. Broil 3 inches from heat source about 10 minutes to brown. Use broad spatula to turn the pinwheels. Brush with melted butter and broil until brown.

Water Problems?

a **BERKELEY**
pressure system will solve them

With a Berkeley Modern Jet System you can always have plenty of water for household use and to keep your garden watered. Berkeley Water Systems are inexpensive to operate and give years of trouble-free service.

Model 07-40 Berkeley Deep Well Jet Water System (¾ hp. Single Stage) pumps 850 G.P.H. at a 40 ft. pumping level with city pressure for all your needs.

There's a Berkeley Jet Type Water System for your particular need. Write for BULLETIN 1108

BERKELEY PUMP

829 Bancroft Way, Dept. A, Berkeley 2, California
556 Tift Ave., S. W., Dept. A, Atlanta, Georgia

Only **MASTER-BILT** FRONT OPEN **Milk Coolers**
offer LEKTRO-TEKTOR protection against
CORROSION of WATER TANK

Literally adds years to the life of the fast cooling, easy loading MASTER-BILT Front Open Milk Cooler. Special magnesium bar diverts corrosion from sides and bottom of tank. Other features include easier cleaning . . . sealed condensing unit . . . economical operation.

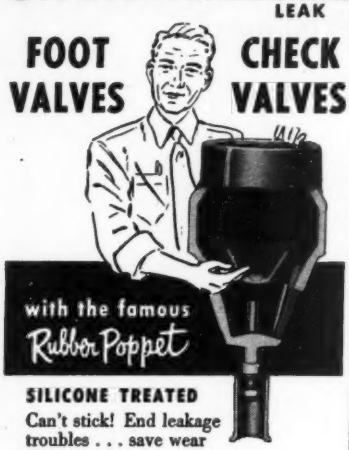
Complete line includes immersion units (without Lektro-Tektor). See your dealer . . . or write for literature and prices.

4-6-8-12 can models
EXTRA! Adaptable for piping milk direct to can!

MASTER-BILT REFRIGERATION MFG. CO.
921 PALM STREET • ST. LOUIS 7, MO.

Strataflo..... CAN'T LEAK

FOOT VALVES **CHECK VALVES**



SILICONE TREATED

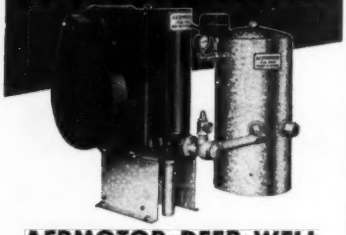
Can't stick! End leakage troubles . . . save wear and tear on pump . . . save their cost in service calls they eliminate. Ideal for jet-type pumps. Write for Bulletin Number 902.

Order from your Jobber

Strataflo

STRATAFLO PRODUCTS, INC.
FORT WAYNE 1, INDIANA

FOR **LONG LIFE**
DEPENDABLE SERVICE



AERMOTOR DEEP WELL
The King of All Electric Water Pumps

Popular Deep Well Electric Pump designed for pumping depths of 20 feet to 730 feet. Four sizes are available with motors ranging from ¼ hp to 3 hp. Smooth running and quiet. Capacities of 118 gallons per hour to 4950 gallons per hour.

Other Aermotor systems are:—

- SUBMERSIBLE
- SHALLOW WELL
- VERTICAL JET
- CONVERTIBLE JET
- WINDMILLS

AERMOTOR

AERMOTOR COMPANY
2500 W. Roosevelt Road, Dept. 1006, Chicago 8, Ill.

for Junior Partners

Hi!

My youngsters are looking forward to school vacation. You probably are, too. I hope you enjoy yours. There'll be lots to do and all day to do it—that is, after chores are done. You may want a vacation from electrical projects, too. Would you settle for a vacation project? It's simple, won't take much of your time, and may save a life. Here's what it is.

Every year, more and more old ice boxes, refrigerators, and freezers are discarded—between 2 and 3 million a year. These old boxes have two things wrong with them. They are air tight and nearly soundproof. If someone gets into one and the door closes, they can't get out. There's no handle inside.

In the past six years, 81 children are known to have died of suffocation in such abandoned boxes. And they weren't just toddlers. Some were 12 year olds.

As a vacation project, either alone or as a 4-H Club or FFA Chapter activity, keep your eye open for these possible death traps. Don't play with them. Instead, find their owners. Tell them that the only way to make such boxes safe is to remove the door. If the box is just stored temporarily, ask the owner to remove the latch-stop. Then the door can't latch. If this is done, no one can get hurt. Then we'll all have more fun on our vacations.

Kenneth V Anderson

A Poultry Picking Project

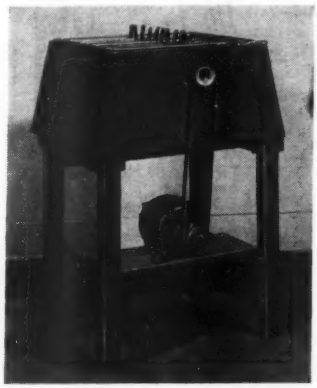
By ERWIN J. RAVEN

This chicken picker was developed by Dick Smith in St. Clair County, Michigan. It started after he picked a few chickens by hand to put in his freezer, a task which took him a full day. That was enough to convince him that there was an easier way, and, although he didn't have need of one of the regular commercial units, he thought he could build one which would handle his small requirements. This is the way he did it.

Four pieces of wood were bolted together, a shaft inserted, and the whole thing mounted in a simple wooden stand. A pulley was provided for one end of the shaft and a motor belted to it. Then the blocks were turned down, in the same way wood is turned in a lathe, until a 3¾ inch reel was provided.

Strips of inner tube were attached to this reel by means of wooden slats. A wire shelf from an old refrigerator was placed over the top and the chicken picker was complete. No special bearings were provided for the shaft (although this would be an improvement) as the small amount of use the machine gets did not seem to warrant it. The shaft is simply supported by the wooden ends of the cabinet.

Here are the steps to building the reel, the most important part. The drawings and dimensions of the cabinet-stand show how it is made. Dimensions for it can be varied to make use of materials you may have on hand.



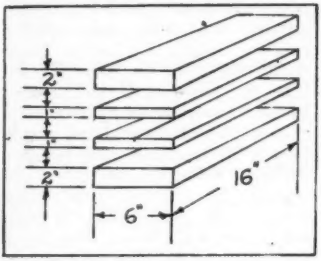
Here is the finished unit ready to go. An old refrigerator shelf provides support for the bird.

The reel is made from two pieces of wood, 2″ x 6″ x 16″,

and two pieces 1" x 6" x 16".

First, make a 1/16" saw cut down the center of the two one inch boards.

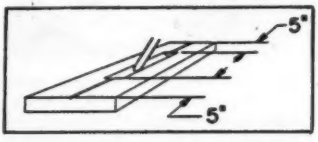
Second, with a chisel, gouge



You'll need four boards with dimensions shown. The 1/16" saw-cut is along the center of the two 1" boards. These are assembled face to face.

out the center section of these boards for a width of about one inch and at least ½ inch deep. Leave each end ungrooved for a length of five inches. The purpose of this is to enable you to drill a hole through the reel with a standard bit.

Assemble the four boards with the 1" pieces in the middle, saw



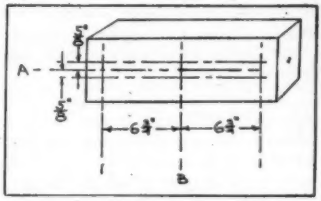
Gouge out the two center boards as shown, leaving the ends with just the saw-cut for a distance of 5 inches.

cuts facing in, and the 2" boards on the outside. This will give you a laminated block measuring 6" x 6" x 16".

Draw two lines on the flat side of one of the two inch boards, passing both ways through its center. Then draw two more lines lengthwise, each one ⅜" to the side of the center line. Then draw two more lines crosswise, each one 6¾" from the other center line. You can see in the drawing how to do it.

Now you must drill six ¼" holes right through the entire built-up block, starting the holes at the point where your layout lines cross. After this is done, take a one inch bit and counterbore these six holes from both sides to give clearance for stove bolt heads and nuts with which the four blocks will be bolted together. If your block measures a full six inches, you will have to counter-bore to a depth of 1¾" on the side in which the nut is placed, and 1½" on the side where the head fits. This will allow clearance for a 3" stove bolt when the reel is turned down to its final 3¾" dimension.

The boards should now be

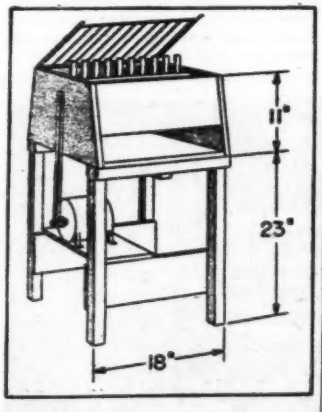


Mark the two centerlines, A and B. Then mark layout lines as shown. You will drill six holes at the points where the two horizontal layout lines cross the three vertical lines.

spread with glue, the six stove bolts inserted and tightened, and the block allowed to dry.

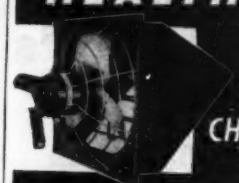
From each end of the finished block, drill a ½" hole through to the open center portion of the block. The saw cuts you originally made will act as a guide for the drill and keep it true. After this, drive in a 19" piece of ½" shaft, letting it extend two inches from one end.

The reel is now ready to be turned. This can be simplified if you split off the corners of the reel with a hatchet. Place the reel in position in the supporting stand and mount a pulley on



Supporting cabinet and stand with dimensions.

HEALTHIER



PIGS, COWS, CHICKENS with

ARGUS VENTILATING FANS

TESTED and ENDORSED by leading agricultural schools

ARGUS DRAFT-FREE CLEAN AIR promotes healthier stock, more eggs, more milk

- Equipped with Minneapolis-Honeywell thermostatically controlled air switch
- Precision-balanced for minimum vibration, trouble-free dependability
- Automatic louvre action prevents back drafts

ARGUS FANS freshen air, control humidity and temperature perfectly, silently, dependably. Clean, odor-free air improves working conditions. Drier air protects buildings, prevents feed spoilage. *12" to 24" sizes suit your need.*

Also ventilating fans for every purpose.

WRITE FOR FREE LITERATURE

DEALER INQUIRIES INVITED

ARGUS MANUFACTURING CO.

1134 N. Kilbourn Ave. • Chicago 51, Illinois

INFORMATION

Service for the Reader

As a reader of ELECTRICITY ON THE FARM Magazine you are entitled to our information service free of cost.

Whenever you are seeking information about any electrical equipment, you can rely on the products of our advertisers.

If you are unable to find information about the particular equipment you require in our advertising pages, fill in the coupon below and we will provide you with the names of manufacturers, and where possible, will have these manufacturers send you descriptive literature.

Use this Coupon

ELECTRICITY ON THE FARM
Readers' Service Dept.,
24 W. 40th St., New York 18, N. Y.

Please have sent to me, without obligation, the names of manufacturers of:

.....

.....

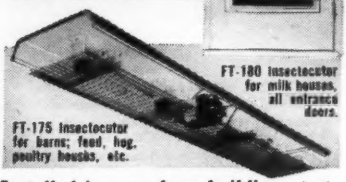
.....

NAME.....

Post Office.....

R.F.D.....State.....

Get Rid of
Pesky Flies and Insects
safely
easily
economically
with
Gardner
Electric
Insectocutors



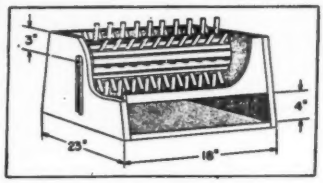
Installed in your farm buildings, tested, proved Gardner Insectocutors attract bothersome, germ-carrying flies and insects to charged grids . . . and automatically electrocute them! Just like that — without the muss, work or odor of other methods — you have dependable, automatic, 24-hour-a-day protection year after year. Operating costs are only a few dimes monthly. Anyone can install them. Thousands in successful service. Write TODAY for free, illustrated folder on Gardner Electric Insectocutors — the safe, automatic, low-cost way to get ahead of your fly and insect problem.

Gardner Manufacturing Co.
6654 Barstow Street, Horicon, Wisconsin

DRAINS Cellars, Cisterns, Wash Tubs; Irrigates your Garden, etc.

"TYPE P" Pump has 1,001 year 'round uses—house, garden, farm. Pumps 2400 GPH, 360 GPH 75' high or 1500 GPH from 25' well. Use 1/6 to 3/4 HP motor. DOES NOT CLOG! Postpaid if cash with order (West of Miss. add 50c) motor coupling included.
MONEY BACK GUARANTEE
LABAWCO PUMPS $6.95
Belle Mead 49, N. J.

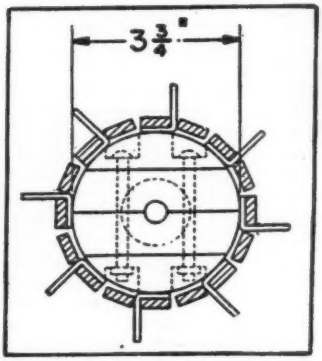
the end of the shaft which will be connected to the motor. Use the same size pulley on the motor (the reel turns at motor speed of 1750 rpm) and, with a chisel and a rest across the top of the unit, turn down the reel to a final diameter of 3¾ inches. You are now ready to finish the unit.



Dimensions of reel supporting cabinet. Front section is cut away to show reel position.

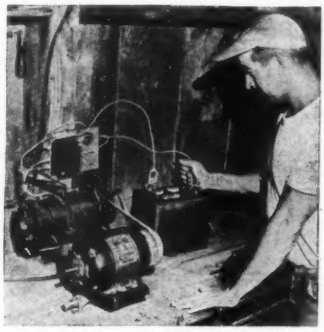
Cut 80 pieces of rubber, ⅝" x 3", from a truck inner tube. These are attached to the reel by wooden slats, measuring ¼" x ¾" x 16", and held in place with ¾" round head wood screws. The rubber strips are placed 1½" apart along the reel. When you have set one row of fingers with the wooden strip, place a second wooden strip up against the other side of the rubber fingers to make them stand out from the reel. Fasten this in place with ¾" round headed wood screws, also.

A ¼ hp motor will have ample power to operate this poultry picker. Although it isn't designed for heavy production work, you may find it just what you want when dressing a few birds from the farm flock.



Cross section of the reel shows how slats hold rubber fingers straight out. Note position of clamping bolts and counterbores which give clearance for heads and nuts.

Battery Recharger

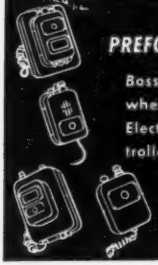


Sydney and Seldon Parnham, dairymen of Lincoln, California, found they could put electricity to work and save themselves a lot of time. During the course of a year, where various pieces of farm equipment, trucks, and cars require batteries, said batteries are very apt to need recharging. To do this, it was necessary for them to take the batteries several miles to town. They either had to wait in town until the charging was completed or make an extra trip.

To overcome this waste of time they took a 50 amp. truck generator, hooked it up to a ¼ hp electric motor, a voltage regulator, an amp. meter, and used it to charge batteries at home.

It is so arranged that the battery needing recharging can be brought in to the charger or the charge can be taken to the battery. Two wires come through the wall from the garage and the batteries can be recharged right in the vehicle.

Electro Line



PREFORMANCE PROVED CONTROLLERS

Bossie doesn't stray there any more. Not when your fence is charged with an Electro-Line Performance Proved Controller. It's a better electric fence because it's Electro-Line.

ELECTRO-LINE PRODUCTS CORPORATION
Saukville, Wisconsin

Questions and Answers

Current Consumption

▶**Question:** *I have read that the electrical consumption of a ½ hp motor on 115 volts is the same as when it operates on 230 volts. A ½ hp motor on 115 volts will draw 7 amperes. On 230 volts it will draw 3.5 amperes. Wouldn't that mean a lower electrical consumption?*

R. J., Michigan

▶**Answer:** The statement regarding the amperage being cut in half when the voltage is doubled is correct. However, the ampere is simply a measure of the flow of electricity, and the volt is a measure of electrical pressure. The watt is the unit of electrical power. It is the constant factor of the three. To find the wattage of the motor, multiply the amperage by the voltage. When you apply this to the ½ hp motor, 115 multiplied by 7 gives the same wattage as 230 multiplied by 3½. The current consumption is the same in both cases.

Dehorning—Bandsaw Speed

▶**Question:** *When is the best time to dehorn a calf, before the horns come through, or after the horn has pierced the skin? Also, I have a 14 inch bandsaw in our farm shop, driven by a ¼ hp motor. The bandsaw has a 10 inch pulley. What size pulley should be on this motor? My friends say it runs too slow.*

C. J. P., Florida

▶**Answer:** Electric dehorning is accomplished with a special dehorning iron. It is similar to an electric soldering iron, except that the tip is hollow so that it will fit over the horn button. The dehorner should be applied as soon as the horn button can be located—the younger the calf, the better.

A 14 inch bandsaw should operate at approximately 2200 feet per minute. This requires a speed of approximately 600 rpm. A 3½ inch pulley on a 1725 rpm motor would be about right for driving the 10 inch pulley on the saw.

Drainage Pump

▶**Question:** *What was the type of pump used for draining land in the article by Hufferd in the February issue? Can a ¾ hp electric motor pull this pump with 115 volts, or must it have 230 volt current? As I must string the wire about 1,500 feet for a similar outfit, how heavy a wire must I use and how far apart can the poles be set?*

R. S., Wisconsin

▶**Answer:** A centrifugal pump is the usual choice for such an installation. Due to the very low head against which the pump works, they can provide high capacity with low power requirements. Although a ¾ hp motor can be operated on 115 volts, it is not recommended. Any motor in excess of ¾ hp in size should be served with 230 volts for proper operation. To provide current for such a pump located 1,500 feet from service would require three No. 6 wires, supported by poles no further apart than 165 feet and with a minimum clearance of 18 feet over roadways and driveways.

Before going ahead with any plan of this nature, I suggest that you contact the rural representative of your power supplier. It may be more economical (and if so, he can tell you how) to have a separate service run to the pump if it can be better served from a different location.

Low Voltage Costs Money

▶**Question:** *I was told once that if the voltage were low on our place, it would make our electric bill higher. Now I'm told this isn't so. Would you please settle this for me?*

Mrs. K. N., Illinois

▶**Answer:** There is some loss of current in any wire carrying electricity. If the wire is the proper size for the job, the loss is negligible. However, if wire that is too small to carry the current required is used, the waste increases and can result in higher than normal cost of operation.

The current supplied to an electric meter is 115 and 230 volts in most cases. That is the point where you measure the current for which you pay. If beyond the meter the wire is too small to handle the current, some of it will be wasted. When the voltage at the point of use is checked, it will be down from the voltage at the meter. In the case of lights, they will be dimmed. In the case of heating equipment, it will be slower. In the case of motors, they will come up to speed more slowly and operate in sluggish fashion.

In spite of the fact that full current has been registered at the meter, you would not be getting it at the point of use. If you wanted to heat a certain amount of water and it took longer than it should, you would be paying for the full current for a longer time than necessary. The loss to you would be

VOGEL

FROST-PROOF HYDRANT

- Will never freeze when properly installed.
- Running water available all year 'round:
  To reduce fire hazards
  To supply livestock needs
- Over a million Vogel Frost-Proof Closets and Hydrants have been sold.

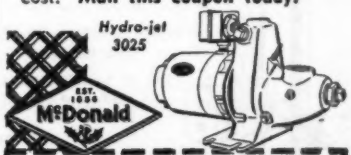
The handle in this position shows you that the water is positively shut off. A leaking hydrant is sure to freeze in winter.

For information, see your nearest Plumbing Supply House—or if you write us direct, state the county in which you are located.

JOSEPH A. VOGEL CO. WILMINGTON 99 DELAWARE

Water Problems?

If your present water system no longer gives you all the water you need where you need it, if it's causing you trouble and the pressure isn't what it should be — mail the coupon below, for information on McDonald's low-cost way of **improving your water system.** This McDonald Hydro-jet pump, for example, costs only $96.00. Delivers up to 550 gal. per hour at high pressure from deep or shallow wells. McDonald can help you modernize your water system at low cost. **Mail this coupon today.**



A. Y. McDONALD MFG. CO.
Dubuque, Iowa

Send me facts on low cost water systems.

Name _____

Address _____

Town _____ State _____

2-Way LIGHTNING PROTECTION

FOR FARM BUILDINGS
Lightning never has destroyed any building fully protected by Security System. It guards against new perils of metal ducts, piping, etc. Uses most durable materials, all UL approved. Low points, neat, almost invisible.

FOR ELECTRICAL APPLIANCES
Green Guard Protective Capacitor is the only such device approved by both REA and Underwriters Laboratories, Inc. Holds lightning surges to *less* than line voltage, protects heaters, lamps, motors, etc. Send for full story. Security Mfg. & Contracting Co., Burlington 21, Wis.

SECURITY
LIGHTNING PROTECTION IN THE MODERN MANNER

Ind. Vacuum Cleaner
Grain & Seed Cleaner
Belt & Bucket Elevator

BUY IT FROM BURROWS and save!
Yes, now look to Burrows for high quality TESTING AND HANDLING EQPT. for feed, seed and grain. Priced right. Prompt service. Satisfaction Guaranteed. Send for catalog today!

Seed & Feed Mixer
Aluminum Elevator
Universal Moisture Tester

BURROWS EQPT. CO. 1316-EL Sherman Ave. Evanston, Ill.

"GARD"
ELECTRIC INSECT KILLERS
- Electrocutes flying insects
- Ideal for outdoor stands, porches and bakeries

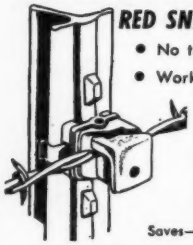
ELECTRIC FLY TRAPS
- Eliminates fly spray
- Ideal for dairies, packing plants, farms, markets, etc.

ELECTRITE FENCE CONTROLLERS
- America's oldest electric fence company

GARDENHOUR MFG. CO.
Waynesboro, Pa.

Pat. #2,475,182

Build the best Electric fence with RED SNAP'R Insulators



- No tie wire needed
- Works on all types posts and fasteners
- Less breakage; made of strong molded red plastic; will last for years.

Saves—Time-Work-Money

Ask your dealer or write to:
NORTH CENTRAL PLASTICS, Inc.
Ellendale, Minnesota

the cost of electric current wasted in trying to get through the small wire.

Stated another way, the flow of current is expressed in amperes. This is equal to the wattage of the equipment, divided by the voltage on which it is running. Let's assume that you have a piece of equipment that draws 1,150 watts. If this is supplied with 115 volt current, it will draw 10 amperes (1150 divided by 115 equals 10). Now suppose the voltage were dropped to 100. You would find that you were drawing 11½ amperes (1150 divided by 100 equals 11.5). This is the reason that motors overheat on low voltage current. The amperage goes above the design rating of the motor, resulting in overheating and possible damage.

Pump Selection

▶**Question:** *What type of water system is best for a well with a three inch casing? The well is drilled 80 feet deep and the water level is 30 feet from the top.*

H. R., Wisconsin

▶**Answer:** The best type of water pump for use in a three inch well will be determined by the amount of water you need to pump and the draw-down level of the water in the well. Your well is 80 feet deep and, although the water level is within 30 feet of the top, I assume that you get some draw-down as you pump. However, the limits given are well within the capacity of a jet pump, and, due to the fact that it does not have to be located directly over the well, this type of pump may have an advantage over the conventional reciprocating deep well pump. Either one of these types of pumps will be suitable for your use.

Welder Interference

▶**Question:** *We have a welder on our farm. Its use causes radio, light and TV interference. How could this annoyance be prevented?*

A. D., Wisconsin

▶**Answer:** The basic cause of radio and TV interference from your welder is the short wave signal emanating from the arc itself. The effect of the welder on your lights would indicate too small an electrical circuit, resulting in reduced voltage created by the demand of the welder.

The first type of interference is difficult to eliminate. The procedure would be to completely shield the room in which the welder is used with fine mesh copper screening. This would also have to include all doors, the floor, and the ceiling. Any wires feeding into the room would require special cable and filters would have to be installed in these circuits. In other words, shielding to prevent the radio and TV interference would be an expensive proposition and a job for an expert. If the welder is used in a farm shop, the nature of the equipment on which it would be used would be such that it frequently would be impossible to do the work in the confines of the shielded room. As this is about the only way of correcting such interference, you will probably find it simpler to put up with it for the short periods in which the welder is in operation.

As far as the interference with lights is concerned, contact the rural representative of your power supplier, or a good, competent electrician. They can help you to analyze your wiring and suggest corrective measures if needed.

Drill or Pipe

▶**Question:** *My barn, where 35 head of cattle are housed, is about 200 yards from my residence. The well at the barn is a shallow well of fairly soft water, but it has been dry most of the time this past five months due to lack of rainfall. The well at the house is a drilled well, 37 feet deep, with standing water 4 feet or less from the top of the ground at all times. Would it be practical to pipe water from the house to the barn, or would a deep well at the barn be the better solution? Water at the house contains sulphur and is not suitable for washing clothes, and I would plan on running water from the shallow well at the barn to my residence for washing clothes during times of normal rainfall.*

L. C. K., Ohio

▶**Answer:** It certainly would be practical to run a pipe line from the well at your house to your barn. The cost would probably be appreciably less than that of drilling a second well. On top of that, you would have no assurance that the second well would produce a water of different quality than that which you are now getting.

You state that your existing well, which is 37 feet deep, has water standing within four feet of the surface at all times. If there is no objectionable draw-down while the pump is in operation, you should have ample capacity for the needs of both house and barn. We would recommend that you have a sample of the water analyzed by a manufacturer of water treating equipment. After proper analysis, it is possible that your present water source may be so improved that it is suitable for all your household purposes, including the washing of clothes.

COLD FACTS tell the story . . .

why one of America's top consumer testing organizations rates Hotpoint Freezers at the Top of the List

Enjoy "Ozzie & Harriet" on Television Every Week

Hotpoint Freezers top the list of *only 3* makes of freezers given the "Recommended" rating by one of the oldest and most reliable consumer testing organizations. Here is unbiased proof that a Hotpoint Freezer is your best buy. Four popular sizes—8, 10, 17, and 26 cu. ft. Your Hotpoint dealer* offers reasonable prices and, if you wish, easy terms. Call on him soon.

*Dealers listed in most classified phone books

Guaranteed by Good Housekeeping

Hotpoint

Changes your viewpoint...automatically

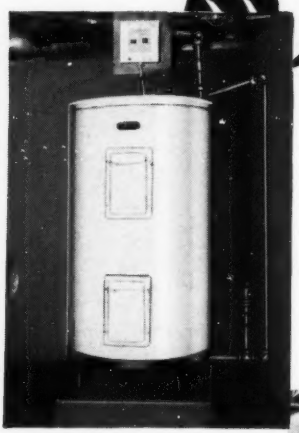
HOTPOINT CO. (A Division of General Electric Company), CHICAGO 44

THE DETROIT EDISON COMPANY
2000 SECOND AVENUE, DETROIT 26, MICH.
Return Postage Guaranteed

Sec. 34.66 P.L. & R.
U. S. POSTAGE
PAID
Detroit, Mich.
Permit No. 724

PERIODICAL

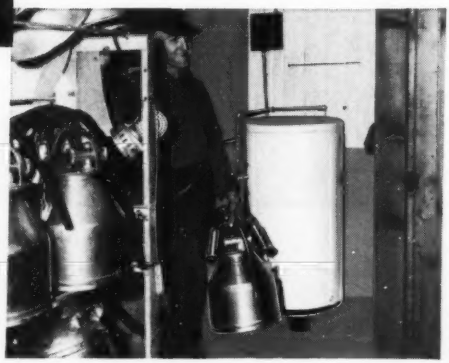
Best Deal for Hot Water
ELECTRIC, of Course!

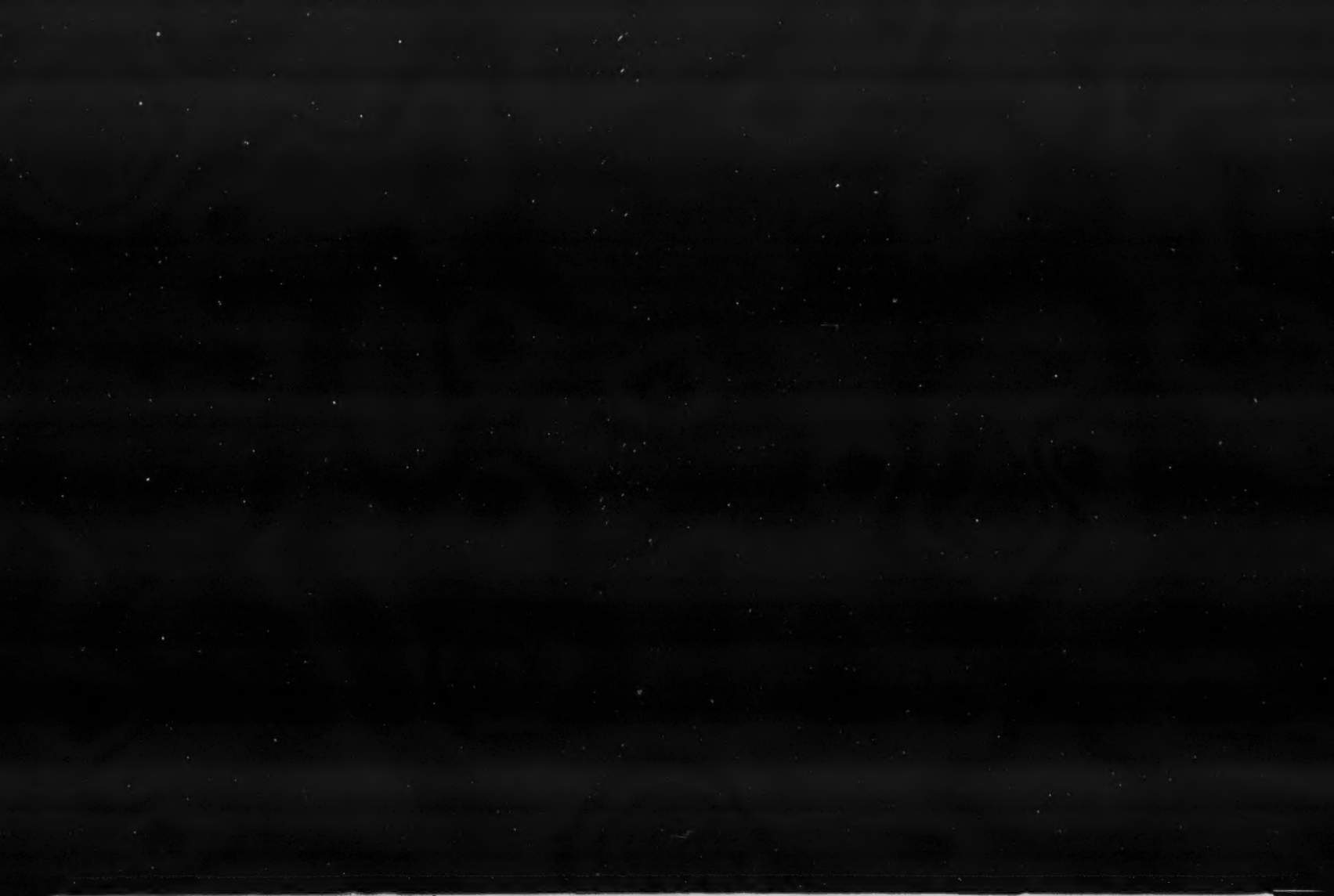


Fred Van Gilder, Livingston County, knows extra value when he sees it. That's why he has an electric water heater in his home and another in his milk house. This combination entitles him to a special rate that's a real money-saver. 30 gallons of 160 degree water daily in the milk house costs him only about 4c a day. And there's no work, no worry, no flame to fuss with.

Ask your Edison Farm Service Advisor about our combination rate. You too will agree it's the best deal for hot water.

IN THE HOME, this electric water heater for dishes, baths, laundry and other household tasks. Real convenience!



IN THE MILK HOUSE, a 30 gal. electric water heater keeps utensils sparkling clean, bacteria count low, milk checks high.

DETROIT EDISON *Light's Diamond Jubilee 1879 to 1954*